University of Alberta

Occupational Knowledge of Grade 9 Students From Urban and Nonurban Schools in Alberta

by

Lisa Dundas Richter ©

A thesis
submitted to the Faculty of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of
Master of Education

Department of Educational Psychology

Edmonton, Alberta

Spring 1995

National Library
of Canada

Acquisitions and
Bibliographic Services Branch

395 Wellington Street
Ottawa, Ontario
K1A 0N4

Bibliothèque nationale
du Canada

Direction des acquisitions et
des services bibliographiques

395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file Votre référence

Our file Notre référence

THE AUTHOR HAS GRANTED AN IRREVOCABLE NON-EXCLUSIVE LICENCE ALLOWING THE NATIONAL LIBRARY OF CANADA TO REPRODUCE, LOAN, DISTRIBUTE OR SELL COPIES OF HIS/HER THESIS BY ANY MEANS AND IN ANY FORM OR FORMAT, MAKING THIS THESIS AVAILABLE TO INTERESTED PERSONS.

L'AUTEUR A ACCORDE UNE LICENCE IRREVOCABLE ET NON EXCLUSIVE PERMETTANT A LA BIBLIOTHEQUE NATIONALE DU CANADA DE REPRODUIRE, PRETER, DISTRIBUER OU VENDRE DES COPIES DE SA THESE DE QUELQUE MANIERE ET SOUS QUELQUE FORME QUE CE SOIT POUR METTRE DES EXEMPLAIRES DE CETTE THESE A LA DISPOSITION DES PERSONNE INTERESSEES.

THE AUTHOR RETAINS OWNERSHIP OF THE COPYRIGHT IN HIS/HER THESIS. NEITHER THE THESIS NOR SUBSTANTIAL EXTRACTS FROM IT MAY BE PRINTED OR OTHERWISE REPRODUCED WITHOUT HIS/HER PERMISSION.

L'AUTEUR CONSERVE LA PROPRIETE DU DROIT D'AUTEUR QUI PROTEGE SA THESE. NI LA THESE NI DES EXTRAITS SUBSTANTIELS DE CELLE-CI NE DOIVENT ETRE IMPRIMES OU AUTREMENT REPRODUITS SANS SON AUTORISATION.

ISBN 0-612-01558-0

Canada

Alberta
EDUCATION

Devonian Building, West Tower
11160 Jasper Avenue
Edmonton, Alberta
Canada T5K 0L2

April 7, 1995

Ms. Lisa Dundas
18613 - 87 A Avenue
Edmonton, Alberta
T5T 1N4

Dear Ms. Dundas:

I hereby grant you nonexclusive permission to use the diagram (Model of Career Development) from *Career Development Services for Alberta Students: A Manual for School Jurisdictions Containing Policy, Guidelines and Procedures* (1984) in your Master's Thesis as requested in your letter of March 22 to Dr. Garnet Millar.

Please carry the following credit notice in your thesis:

"Used by permission of Alberta Education, as represented by the Minister of Education, and the Special Education Branch."

I am pleased that you found our document to be useful in the development of your thesis. Best of luck in obtaining your Master's degree.

Sincerely,

Steve Cymbol
Assistant Deputy Minister
Regional Services Division

cc: Dr. H. L. Finnestad
Dr. G. Millar

♻ Printed on Recycled Paper

University of Alberta

Release Form

Name of Author: Lisa Dundas Richter

Title of Thesis: **Occupational Knowledge of Grade 9 Students From Urban and Nonurban Schools in Alberta**

Degree: Master of Education

Year This Degree Granted: 1995

Permission is hereby granted to the University of Alberta Library to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly, or scientific research purposes only.

The author reserves all other publication and other rights in association with the copyright in the thesis, and except as hereinbefore provided, neither the thesis nor any substantial portion thereof may be printed or otherwise reproduced in any material form whatever without the author's prior written permission.

L. Dundas Richter
(Student's signature)

18613 - 87A Avenue
Edmonton, Alberta
T5T 1N4

Date April 21, 1995

University of Alberta

Faculty of Graduate Studies and Research

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled *Occupational Knowledge of Grade 9 Students From Urban and Nonurban Schools in Alberta* submitted by Lisa Dundas Richter in partial fulfillment of the requirements for the degree of Master of Education.

Gretchen C. Hess
Dr. G. C. Hess, Supervisor

Barbara Paulson
Dr. B. L. Paulson

Dr. H. W. Hodysh

Date 18 April 1995

Abstract

The purpose of this study was to determine if there are significant differences in the levels of occupational knowledge of Grade 9 students (n = 358) from urban and nonurban areas within the province of Alberta. Students completed the *Cognitive Vocational Maturity Test (CVMT)* and a questionnaire. The students' Health and Personal Life Skills teachers were also interviewed. Significant differences were found using Pearson Product Moment correlations, *t* tests, and the ANOVA. Nonurban students were found to have adequate occupational knowledge; however, they reported lower educational expectations and occupational aspirations than did students attending urban schools in higher socioeconomic (SES) areas. Students who attended schools in lower SES urban areas demonstrated less occupational knowledge that did nonurban students and those attending schools in higher SES urban areas. These students also reported lower educational expectations and occupational aspirations than their urban counterparts did. Qualitative data provided by students is discussed in relation to the findings.

Acknowledgements

The assistance of many people is required in order to complete a study of this nature. I would like to extend special thanks to all of the students and teachers who participated in this study. I hope this thesis adequately expresses some of the students' concerns and issues. Thanks as well to the participating schools' administrators, whose assistance was extremely helpful. In addition, I would also like to extend my appreciation to the following individuals:

Dr. Gretchen Hess, my thesis supervisor, has provided me with immeasurable support and guidance throughout the process of preparing this thesis, as well as my time at graduate school. She has been a role model I have attempted to emulate as a teacher and a counsellor, and I thank her.

My thanks to Dr. Barbara Paulson and Dr. Henry Hodysh for serving on my committee and for their interest in this study.

Cliff Kinzel and Roy Jaffray were very helpful in the preparation and coding of the questionnaire. Roy's assistance in the data analysis is appreciated, as well as that of Norma Bougie.

The encouragement of the County of Lac Ste. Anne's central office administration, as well as the principals at Onoway Junior-Senior High School, enabled me to pursue this study, for which I am grateful.

I could not have completed this project without the support and encouragement of friends and family members who in so many ways assisted me and my family through every stage of this process. My thanks to Mary Moody for all of her interest and advice. And finally, to Gordie and Myles, thank you for waiting for me.

Table of Contents

Chapter Page

1. The Problem 1
    The Workplace of the Future 1
    The Adolescent Dilemma 2
    Attempts to Prepare Youth for the Future 6
    Difficulties Faced by Rural Students 8
    The Problem 9
    Purpose of the Study 10
    Chapter Summary 10
    Definition of Terms 11
2. Review of the Literature 13
    The Importance of Work 13
    The School's Place in Career Education 14
    Situation of Students 16
    Lack of Knowledge 18
    Career Development Research 20
        Super's Theory 20
        Super's Exploration Stage 21
    Career Maturity 24
        Career-Maturity Measures 25
    Valuables Related to Career Maturity 25
    Occupational Knowledge 26
        Location 28
        Intelligence/Academic Achievement 31
        Gender Differences 31
        Aspirations 32

Chapter Page

Socioeconomic Status 36

Family Influence/Role Models 36

Other Variables 38

Chapter Summary 38

3. Procedures and Method 40

Introduction 40

Research Questions to Be Addressed 40

Research Participants 42

The Sample 42

Description of Participating Schools 44

School District A 44

School District B 44

School District C 45

School District D 46

Description of Health Programs 48

Data Collection 49

Procedures for Approval 49

Pilot Study 50

Test Administration Procedures 50

School District A 51

School District B 52

School District C 53

School District D 54

Reports Back to Participating Schools 55

The Instruments 55

Career Maturity 55

Chapter Page

The Cognitive Vocational Maturity Test 56

Reliability of the CVMT 58

Validity of the CVMT 59

Revisions to the CVMT 61

Permission to Use the CVMT 61

Student Questionnaire 62

Coding of the Questionnaire 62

Questions 1 Through 7 62

Questions 8, 9, 10, and 14 62

Discussion of Coding Questions 8, 9, 10, and 14 65

Discussion of Coding Questions 12, 13, 15, 16, and 17 . . 66

Data Analysis 66

Limitations and Delimitations of the Study 66

Chapter Summary 68

4. Results 70

Performance of the CVMT 70

Results of Analyses 71

Research Question A 71

Research Question B 76

Research Question C 81

Research Question D 83

Research Question E 83

Research Question F 84

Research Question G 84

Highest Job Variable Listed 85

Number of Jobs Listed 85

Chapter Page

Research Question H 86

Research Question I 87

Research Question J 88

Research Question K 88

Research Question L 89

Number of Jobs Listed 89

Highest Job Variable Listed 90

Highest Parent Job 91

Occupational Aspirations 91

Total Training Score 91

Amount of Education 91

Preparedness 92

Chapter Summary 92

5. Discussion 95

Concern About the Future World of Work 96

Occupational Knowledge 99

CVMT Results 99

Questionnaire Measures of Occupational Knowledge 100

Preparedness 104

Gender 106

Educational Expectations/Occupational Aspirations 107

Influence of Parents 109

Adolescent Optimism 111

Concluding Observations 113

Significance of the Study 116

Theoretical Significance 116

Chapter Page

Practical Significance 117

Recommendations for Future Research 118

References 121

Appendixes:

A. Cognitive Vocational Maturity Test 130

B. Copy of Student Questionnaire With Codes and Coding Guidelines Added 153

C. Summary of Responses to Interview Questions by Participants' Grade 9 Health Teachers 161

D. Outline of Points Made During the Administration of Demographic Data Questionnaire and CVMT 163

E. Copy of Project Administration Guidelines Given to Supervising Teachers at North School and East School 164

F. Copy of Text of Letter to Be Mailed to Participating Health and Personal Life Skills Teachers 166

G. Sample Questions to Be Asked of Health and Personal Life Skills Teachers 167

H. Copy of Text of Letter to Be Mailed to School Boards 168

I. Copy of Parental Information/Permission Form 169

J. Copy of Parental Information/Permission Form 170

List of Tables

Table Page

3-1. 1991 Canada Census Description of School Locations 42

3-2. Demographic Description of Participating Students 48

3-3. KR-20 Reliability Coefficients and Standard Errors of Measurement for Grade 9 Students Who Participated in the Standardization Sample 59

3-4. Student Questionnaire Items and Related Variable Information Question Addresses 63

4-1. Intercorrelations Between Students' Scores on the Cognitive Vocational Maturity Test and Selected Items From the Student Questionnaire 72

4-2. Intercorrelations Between Students' Scores on the Cognitive Vocational Maturity Test and Student Questionnaire Items 14, 15, 16, and 17 75

4-3. Oneway ANOVA Results Comparing Students' Scores on the Cognitive Vocational Maturity Test at Each of the Three School Locations 77

4-4. Results of ANOVA Comparing Students' Scores on the Cognitive Vocational Maturity Test Based on Students' School Location, Gender, and Reported Academic Achievement 79

4-5. Summary of Students' Mean Cognitive Vocational Maturity Test Scores and Reported Levels of Academic Achievement by School Location and Gender 79

4-6. Results of ANOVA Comparing Students' Scores on the Cognitive Vocational Maturity Test and Scores on Questionnaire Items 9/10, 12, and 13, Based on Their School Location 82

4-7. Results of ANOVA Comparing Students' Scores on the Cognitive Vocational Maturity Test and Scores on Questionnaire Items 8, 14, 15, 16, and 17, Based on Their School Location 86

4-8. Results of *t* Tests Comparing Farm and Nonfarm Students' Cognitive Vocational Maturity Test Scores and Responses to Student-Questionnaire Variables 90

List of Figures

Figure Page

2-1. Model of Career Development 23

4-1. CVMT Scores of Students as a Function of School Location and Gender Showing a Significant Two-Way Interaction 80

CHAPTER 1

THE PROBLEM

> *The vocational possibilities young people are aware of and prepared to consider, their readiness to choose among them, and the determinants and outcomes of their aspirations and choices are, therefore, matters of considerable importance to educators and counselors, particularly since evidence is mounting that adolescent goals, even in the last year of high school, are often poorly conceived and at variance with later work histories. (Jordaan & Heyde, 1979, p. 2)*

The Workplace of the Future

By the year 2000, 60% of job openings will require some form of post-secondary education. Those workers without post-secondary education will take up approximately 40% of the jobs, and of that 40%, less than one tenth of workers will be those with little or no high school. Fewer jobs will be available in areas where automation and computer-controlled operation are viable. With the advance of technology, new skills will be required of workers who perform middle- and low-skill jobs. In addition to these projections, Alberta Advanced Education and Career Development (1993b) also forecasts that by the year 2000, 72% of Albertans will be working in the service sector as we move from a goods-based to a service-based society.

Many researchers state that, internationally, we are moving towards a period of rapid changes in the types of jobs in demand (Alberta Education, 1987; McDaniels, 1989; Bennett, 1990; Jarvis, 1991). Alberta Advanced Education and Career Development (1993b) speculates that such fields as robotics, artificial intelligence, biotechnology, and fibre optics will be areas of growth and will require certain technical skills and training. Manufacturing jobs will move to those countries where labor is cheaper. One of the major areas of movement will be in the information industry, where McDaniels writes that in the United States, currently, "more people are involved in information and communication than in mining, agriculture, manufacturing, and personal services combined" (pp. 52-53). He describes three possible scenarios of the future American workplace. In his "worst case" scenario he suggests that we will see decreasing amounts of manufacturing carried out in the U. S., downscaling of jobs, shifting to the use of cheaper labor in other countries, decreasing job opportunities for college graduates, continuing high unemployment with a large, expendable work force, and a declining middle class (pp. 78-99). Soon workers will no longer expect the typical workday of 9:00 until 5:00, with security, tenure, and benefits. Workers will likely change jobs, and even careers, several times throughout their working life. There will be increases in part-time work, job sharing, contract work, and consulting, with flexible work arrangements becoming more popular (Lewis & Kuller, 1990; Alberta Advanced Education and Career Development, 1993b).

Smith (1986) states that Canada, like other developed countries, is presently in a situation of high unemployment and that the move into new technologies may further displace workers, creating more unemployment. One of the most difficult issues in the future will be the problem of skills "mismatch," or in Smith's words, "The auto worker who is laid off the assembly line may not be able to program a computer. The transition must be made by individual human beings if they are to stay off the unemployment rolls" (p. 60). What is required is more people with skills and the appropriate level of education and training (Jarvis, 1991):

> Profound economic and workplace change, generated by enhanced trading arrangements, new technologies, and changing work organization, calls for on-line, interactive continuous learning if people are to create new meaning and productively fashion a positive Canadian future. (Burton, 1990, p. 294)

Self-awareness and occupational knowledge appear to be needed in order to cope with the changes. In addition to such factors as being aware of one's interests and skill levels and being able to market one's skills in a changing labor market, what is also required is an ongoing knowledge of the world of work, a knowledge of available jobs and their typical conditions and training requirements (Perlmutter Bloch, 1989). Knowledge of the world of work is essential to being able to optimize the possibility of obtaining work in a field that matches one's skill level and interests. Of concern is the preparation of youth to cope with the future labor market, particularly in reference to their level of occupational knowledge.

The Adolescent Dilemma

Coupled with the difficulties with which adolescents are faced in preparing for the economy and labor market is their ability to face it realistically. Television, technology, and the ability to travel have enabled today's adolescents to be more informed than ever before (Bibby & Posterski, 1992). In addition to being aware, adolescents must apply this knowledge to their own life planning. Being realistic may prove difficult for adolescents. Bibby and Posterski contend that adolescents' lack of responsibilities and life experience make it easy for them not to be practical. For example, these authors conclude that the educational aspirations of Canadian youth far exceed those of their parents (Bibby & Posterski 1985, 1992) and are beyond what the majority of them are likely to experience. Fifty percent of those adolescents surveyed in a Canada-wide study stated that they expected to graduate from university, and 24% said they expected to graduate from vocational school (Bibby and Posterski, 1992). Bibby and Posterski contrast these aspirations with the fact that only 15% of adolescents will likely attend a university, and only half of those who plan to go to vocational school will attend. Knowledge of the economic climate, high admission standards at university, housing prices, and divorce rates are not seen to be affecting adolescents' plans for their future, according to these authors. In their 1984 survey of 3,600 Canadian teens, they concluded:

> On the one hand, teenagers recognize the potential employment problem." . . . On the other hand, while they perceive unemployment as a severe problem, they continue to have a remarkable amount of optimism about their *own personal* employment prospects. More than 70% maintain that when they complete their education, they "think that [they] will be able to find a good job." Optimism about future employment varies only slightly by region. . . . There is little difference in employment optimism by either age or, significantly, *gender.* Female teenagers have as high employment hopes as males. (Bibby & Posterski, 1985, p. 165)

Sharpe's (1992) seven-year longitudinal study of Grade 12 students in Newfoundland found similar results. He stated that, while still in high school, "the basis of most student career choices appeared to be personal interest rather than one based on economic opportunity and job availability" (p. 7). Students are not considering that their interests may not lead to future employment. Sharpe's first follow-up survey, after graduation, revealed that almost half of the students stated that their career plans were not progressing as they expected. The most commonly cited reason was inadequate academic qualifications or a failure to plan realistically for future career goals. The situation appears to be that in spite of a changing labor market, adolescents continue to be unprepared for the future world of work. The students' lack of knowledge about jobs and their requirements, duties, and conditions may be one reason for this finding.

Despite reportedly being aware of the major shifts in the job place, it would seem that a large proportion of young people fail to pursue a path of education and training which will increase their chances for successful employment. Currently, approximately 30% of those 15 years and older in Canada have dropped out of school prior to high school graduation; the number is larger for Aboriginal students (Jarvis, 1991, Bibby & Posterski, 1992; Holmes & Silverman, 1992; Statistics Canada, 1993a). These statistics are surprising to Holmes and Silverman, who report that only 3% of all students ever plan to drop out. Alberta Advanced Education and Career Development (1993b) reports that approximately 29% of Albertans are unable to cope with everyday reading requirements, and 28% cannot deal with everyday math requirements. This information leads one to question how prepared these individuals are to cope with the workplace of today and the future. Statistics Canada (1993a) reports that 29% of Alberta's population was without secondary school graduation and had no further training. Alberta's rate was one of the lowest in the country; Newfoundland's was 42%, and Saskatchewan's was 34%. Jarvis writes that it is estimated that 66% of the jobs created by the year 2000 will require more than a high school diploma, and approximately 50% of these will require five or more years of post-secondary education and training. These figures appear at a time when technical skills become obsolete in seven years, and skills must be constantly upgraded in order to remain qualified (Alberta Advanced Education and Career Development, 1993b). Herr and Cramer (1992) state that "undereducated and unskilled workers are still the major problem in the labor force. The less people are educated, the more likely it is that they will be unemployed" (p. 125). These conditions can, and often do, lead to youth unemployment:

> Young people have the highest unemployment rate of any age group in Canada. In 1992, 184,000 people aged 15-19, 19.7% of all labour force participants in this age range, were unemployed. This compared with 16.6% of those age 20-24 and 9.9% of those aged 25 and over. . . . As a result, young people made up 12% of all unemployed Canadians in 1992, whereas they represented only 6% of those with jobs. (Statistics Canada, 1994, p. 24)

Whether youth drop out of school and/or they are unable to find work after completing their education, unemployment and underemployment may have serious repercussions. A focal point of the 1984 Focus on Youth report is that the lack of work for adolescents and young adults subjects them to economic hardship. However, there is a larger problem:

> A deeper crisis results from the absence of meaningful activity and attachment to the institutions of school and work. This is a crisis of values. There is a sense of purposelessness among many young people and questions about the ability of those without meaningful activity now to fully participate in society later in life. (Minister of State [Youth], 1984, p. 17)

The problem is deemed not to be temporary. In a discussion of the 1991 Statistics Canada School Leavers Survey, Alberta Advanced Education and Career Development (1993a) state that school dropouts were twice as likely to be laid off as graduates, and were more likely to rely on such social programs as Unemployment Insurance and social assistance. School dropouts, according to this survey, were less able to cope with unemployment than school graduates. For example, they were less knowledgeable about services available for them and less likely to use them.

Jarvis (1991) emphasizes that even those who do graduate may have difficulty finding a permanent job. He states that the median duration for keeping a first job is one year, at which time many youth go on to other jobs. Such a path may be interspersed with periods of unemployment, at which time these young workers may receive government-funded social assistance. Added to these societal costs are the costs to employers who train youth for jobs that they will later leave, and the cost to young people's physical and psychological health as they search for a job that they enjoy. "Lost productivity is no doubt the greatest economic cost of inappropriate career decisions" (p. 53). As Jarvis emphasizes, we, as a society, may be paying a high price for youth's inability to make timely and appropriate career decisions. It may be speculated that a lack of occupational knowledge is a contributing factor to youth not choosing a career for which they have interest, skills, and the ability to pursue successfully.

Concern about the future is a priority with adolescents. Over 50% of adolescents between 15 and 19 years stated that what they were going to do after high school concerned them a great deal or quite a bit (Posterski & Bibby, 1988), and this increased to 72% in 1992 (Bibby & Posterski, 1992). These findings are consistent with those of Neufeld and Ferner (1993), who found that "occupation and career-related factors" were of more concern to students from Grades 6 through 9 than home/family and school problems (p. 19). This concern may stem from the current economic climate or from the pressure reported by the students about making important decisions in Grades 8 and 9 before they have clear career goals (Jarvis, 1991; Globa & Sotas, 1993). Jordaan and Heyde (1979) agree with the comments of Herr and Cramer (1992):

> The fundamental point is that the problem of committing oneself to an educational plan, advertently or inadvertently, in the junior high school as one prepares for the transition to high school is one with ramifications that ripple throughout one's life. One can keep open or foreclose future opportunities by the course content and the course patterns that one chooses in the junior high school and in the transition to the intermediate or senior high school. When one makes such choices, one essentially limits or establishes an interactive network of future alternatives. (p. 368)

Students are worried about their future in the world of work. They have knowledge of the labor market and current changes in the economy, yet they have difficulty realistically seeing themselves and preparing themselves for their place in this future economy. They have high expectations, and yet many have difficulty remaining in school. Those who do often have difficulty implementing an education/training plan that will allow them to reach their aspirations. What appears to be important in this adolescent dilemma is that adolescents have some degree of occupational knowledge. Occupational knowledge is needed if youth are to have some idea of what various jobs entail and how that matches with their own developing interests and understanding of themselves. Occupational knowledge is an essential component of realistic career choices. As Willis (1985) states, "Career decisions are only as realistic and appropriate as the information available" (p. 17). Likely, this would imply the necessity of knowledge about the jobs and about oneself. Lerner and Galambos (1984) recommend, in order for parents, teachers, and teens to optimize career development, that teens receive "extensive, timely, and relevant career information" (p. 327). "The onus is on workers to be flexible and creative, to focus on learning what interests them and skills that are needed in the workplace" (Alberta Advanced Education and Career Development, 1993b, p. 46). A knowledge of occupations is an essential component of any youth career-preparation initiatives.

Attempts to Prepare Youth for the Future

Those in the education system have taken on the responsibility and/or are expected to prepare youth for the future labor market and the world of work (Alberta Education, 1984; Stern, 1992; Herr & Cramer, 1992). In Alberta, Alberta Education policy has been outlined:

> Career development, since it involves the development of a life-long accumulation of work-related activities and experiences, is an integral element of both education and schooling. It is, therefore, appropriate that career development should be a priority of Alberta Education. (Alberta Education, 1984, p. 3)

The *Guide to Education: ECS [Early Childhood Services] to Grade 9 Handbook* identifies program requirements as specified by Alberta Education (1994). In this document it is stated that "schools will be accountable for their students' achievement of provincial learning standards including employability skills consistent with workplace requirements" (p. A1-2). In order to fulfill this expectation, a Health curriculum has been devised which "firmly places career education within the mandatory core educational program in Grades 1 through 9 in Alberta schools" (Alberta Education, 1984, pp. 14-15). In conjunction with health-related themes, each year of their schooling students are provided with instruction in the areas of career awareness and preparation for the workplace. Through the Elementary Health curriculum, the Junior High Health and Personal Life Skills curriculum and on through the Grade 11 Career and Life Management course, students cover such themes as Life Careers, Career Awareness and Planning, and the World of Work. The amount of time allotted to these themes increases as the student progresses, particularly from Grades 7 through 9. Of the 40 hours mandated for the instruction of the health curriculum, students initially are to receive 3 to 4 hours of instruction in the Life Careers unit in Grade 7, and this is increased to 15 to 17 hours by Grade 9 (Alberta Education, 1986, pp. 11-12). The Health and Personal Life Skills curriculum (Alberta Education, 1986) focuses specifically on occupational knowledge at the Grade 8 and 9 levels. Objectives that refer specifically to this area are listed as follows:

> Grade 8
>
> 1. Understanding the interdependence of jobs/occupations.
> 2. Understanding the relationship between occupational and lifestyle choices.
> 3. Understanding the relationships between individual characteristics, career development and personal satisfaction.
>
> Grade 9
>
> 1. Understanding occupational classifications.
> 2. Understanding the relationship between educational preparation and occupational choice.
> 5. Appreciating the importance of early ongoing educational and vocational planning. (p. 8)

The premise of this curriculum is that career planning is a process. Students in Grades 7 through 9 are said to be in the exploratory stage; they are to achieve a number of general objectives: exploration of occupational clusters, development of an understanding of jobs and the relationships of jobs, identification of working conditions related to occupations, and the education and preparation required to enter into various clusters of occupations (Alberta Education, 1984). Effective decision-making skills and self-knowledge are also emphasized in this process (Stewart, 1985; Willis, 1985). Although not stated, this description of stages and tasks coincides with Super's (1963) model of career development.

The importance of parents and community is also stressed in a discussion of the rationale and philosophy of the Alberta Health curricula.

> The Health and Personal Life Skills program encourages the involvement of community agencies. To promote accurate information exchange and to encourage ongoing health education, it is important to involve parents and community resource persons in the health program. Health education is a responsibility shared with the home and community. (Alberta Education, 1993, p. Health A.1)

It would appear that Alberta Education has assumed that knowledge of careers and the world of work is strongly influenced by the community in which a student lives, and by her own family.

Difficulties Faced by Rural Students

Although all Alberta school children have the opportunity to receive instruction in the health curricula, others have suggested that there may be a difference in students' level of career development/career awareness or occupational knowledge as a result of difference in location. Stein (1977) suggests that students living in rural areas may lack the broad range of attitudes, values, career experiences, and role models when compared to their urban counterparts and that this may limit their future aspirations and choices. Parents of rural students may also be disadvantaged in their amount of occupational knowledge and career experience, which may also limit their children's future choices (Jeffery, Lehr, Hache, & Campbell, 1992). These authors' preliminary findings of parents' concerns support the notion that rural students lack exposure to alternative careers and a variety of role models, and their access to information sources is limited:

> Because the rural context is different than the urban, programs which involve notions such as job shadowing, mentor identification, and visits or contacts with persons engaged in diverse occupations, are simply not

> feasible. There are few "specialized" or "alternative" careers represented in the rural community. There simply is not a diverse range of occupations being practiced within "travelling distance" of most rural communities. A parent or youth often knows little about such jobs and because of distance (travel cost) and non-availability of models, mentors and "real" opportunities to observe, there is virtually no chance to explore wide-ranging occupations. (Jeffery et al., 1992, pp. 245-246)

Students in rural areas may be at a disadvantage due to their location when addressing, for example, their level of occupational information. Concern would be for those 26% of adolescents living in Canada aged 15-19 years who are classified as living in rural areas (Statistics Canada, 1994, p. 9). Findings by others (Rich, 1979; Elliott, 1987; Jeffery et al., 1992) suggest that there may be a discrepancy in the amount of occupational knowledge held by urban and nonurban students in Alberta.

The Problem

The Health and Personal Life Skills Program Rationale and Philosophy emphasizes that the involvement of the community is encouraged. "Health education is a responsibility shared with the home and community" {Alberta Education, 1993, p. Health A.1). Perhaps in no other subject is the influence of the community and home as great as in career planning and, in particular, in the area of occupational knowledge. Whether students grow up on a federal Indian reserve in Northern Alberta, in a large city, in a suburb, or on a farm in the southern corner of the province, their location is likely to determine greatly the amount of knowledge that they have about the day-to-day workings of particular occupations. Knowledge of these different occupations may greatly influence the future educational and career choices that students will make. Because there are no stated guidelines as how to make up for the differences in occupational knowledge that students from various sectors of the province may have, it would appear that the Alberta Department of Education is assuming that students have equal knowledge and opportunity to learn about the world of work, and that they make the most appropriate choices for themselves. Such an assumption negates the fact that students from rural or less economically advantaged areas of the province are less likely to be exposed at school, or through their community, to the wide variety and ever-changing array of occupations that they may consider as their future career. This disadvantage may mean that they are less knowledgeable about various jobs and may not even consider potentially suitable occupations due to ignorance. If students living in rural or nonurban areas are found to be less knowledgeable about occupations in our changing labor market, they will be at a disadvantage when making future career choices, and may be less prepared to compete as workers with their urban counterparts in the future.

Purpose of the Study

It is the purpose of this study to examine if there are any significant differences between the levels of occupational knowledge (as measured by a test of occupational knowledge—The Cognitive Vocational Maturity Test [with revisions]) among Grade 9 students from urban and nonurban schools in Alberta who have completed activities related to the Grade 9 Health and Personal Life Skills Life Careers unit.

Chapter Summary

Many changes are currently taking place in the global economy, and we, in Alberta, are directly affected by them. Our youth are continually confronted with increasing skill and education demands in the workplace and rapidly changing technology. These changes are juxtaposed with the inability of many youth to prepare themselves for work in a realistic and feasible manner that results in employment and personal satisfaction. Knowledge of occupations is an essential component in adolescents' successful preparation for a future world of work. The issue of concern in this study is possible differences in occupational knowledge based on an adolescent's location. A discrepancy in the amount and type of information available may result in urban students having an advantage over those from nonurban locations in the workplace of the future. The following research project was conducted in order to address this concern: Are there significant differences in urban and nonurban students' levels of occupational knowledge?

The chapters that follow present the current study. A review of the literature and research findings relevant to this project are presented in Chapter 2. Based on this review, a number of research questions were formulated , which are outlined in Chapter 3. Also included in Chapter 3 is a review of the method and procedures used to guide the study. Several statistical analyses were performed in order to answer the research questions; the results are detailed in Chapter 4. Chapter 5 includes a discussion of the results of the study and implications of the findings. Areas that may be addressed by future research are included in this final chapter.

A number of terms are used throughout the previous and proceeding chapters. The following definitions are provided to help delineate the meaning of these terms as they relate to the current study.

Definition of Terms

Career: "Career is conceived as the process of educational and vocational development" (Gribbons & Lohnes, 1982, p. 8).

Career awareness: "Career awareness includes such skills as relating abilities, values, and societal needs to career selection and recognizing the importance and relevance of school programs to the requirements for occupations" (Khan & Alvi, 1984, p. 23). This definition implies that one is also knowledgeable of "the requirements for occupations."

Career development: "an ongoing process of awareness, exploration, preparation and adjustment to the world of work that takes place throughout life. This process includes home, school and community experiences that influence an individual's self-concept, life style and occupational choices" (Alberta Education, 1984, p. 6).

Career education: "part of the process of career development, which occurs both within and outside of a school. Within the school, career education is a comprehensive, developmental program designed to help all students acquire the knowledge and skills necessary to make realistic educational and occupational plans" (Alberta Education, 1984, p. 6).

Career maturity (vocational maturity): "the individual's readiness to cope with the developmental tasks with which he or she is confronted because of his or her biological and social developments and because of society's expectations of people who have reached that stage of development. This readiness is both affective and cognitive" (Super, 1990, p. 213).

Cognitive vocational maturity: an aspect of vocational/career maturity which is measured by the CVMT. In reference to this study, it is deemed to be a similar construct to occupational knowledge.

Occupational knowledge: "Most frequently, occupational knowledge has been identified and measured as the extent to which children and adolescents possess and can demonstrate accurate and realistic knowledge about certain occupations and/or their preferred occupation. . . . The child or adolescent is judged according to the amount of accurate information demonstrated" (Borgen & Young, 1982, p. 37).

As measured by the CVMT, occupational knowledge includes "career knowledges and abilities within six areas of the cognitive domain of vocational maturity. Emphasis is placed upon a knowledge of the characteristics and requirements of a wide range of occupations. The ability to select the most realistic occupation for a hypothetical individual who is described in terms of abilities, interests, and values is also included" (Westbrook & Parry-Hill, 1973, p. 21).

Rural/nonurban: "Statistics Canada defines an urban area as an area which has attained a population concentration of at least 1,000, and a population density of at least 400 per square kilometer, at the previous census. All territory lying outside urban areas is considered rural" (Statistics Canada, 1992, p. 304).

Urban: "Statistics Canada defines an urban area as an area which has attained a population concentration of at least 1,000, and a population density of at least 400 per square kilometer, at the previous census" (Statistics Canada, 1992, p. 304).

CHAPTER 2

REVIEW OF THE LITERATURE

The Importance of Work

> *Humans work to live. Work is a primary element of humanity's fate. It is instrumental not only in securing the necessities of life but also in conferring the status of responsible adulthood. The lucky person enjoys work and looks forward to returning to it after being away from it for a time. Our work expresses our lives in the same way that our families and our avocations do. Good work is very important to us. But, good work is not everyone's lot in this world. A person must choose and seek in order to secure good work, and he also needs some grace and some luck. If he is ill-endowed, or he judges poorly, or he blunders repeatedly, he may flounder for years or for a lifetime in a succession of wretched jobs, or he may stagnate endlessly in one detestable job, or he may become unemployable. . . .*
>
> *What may be good work for a person today is not necessarily good work tomorrow for the same person. . . . It is not the job circumstances of the moment that individuals value so much as it is the pattern in their work history as they have already lived it and as they anticipate the future. (Gribbons & Lohnes, 1982, pp. 1-2)*

From the findings of their 20-year longitudinal study of the career development of individuals from 12 to 32 years of age, Gribbons and Lohnes (1982) emphasize the importance not only of having employment, but also of having a job that is suitable to the individual. They conclude that satisfactory work at one stage in life may be inappropriate for an individual over time. Gribbons and Lohnes allude to the fact that a job may reflect a great deal about an individual. One's occupation may be an expression of "personal interests, abilities and values," a means of obtaining status, and "a major determinant of life style. Work is clearly central to most people's lives" (Jordaan & Heyde, 1979, p. 1). Such statements stress the importance of having knowledge about occupations, in addition to knowing oneself, in order to plan and prepare at all stages of one's life for the most suitable and personally rewarding work (Perlmutter Bloch, 1989; Osipow, 1990).

In industrial societies, adolescents are expected to begin preparing for future work in order that they eventually are able to assume the responsibility of economic independence. Stern and Eichorn (1989) write that "the search for occupational identity can be considered the defining characteristic of contemporary adolescence" (p. 4). During the adolescent period and extending to young adulthood, "the process of vocational development occupies a central role in the individual's efforts to acquire a distinct self-definition, or identity" (Vondracek & Schulenberg, 1984, p. 317). A vocational identity is important to the self-concept and to other aspects of a person's life; for example, how others perceive an individual (Vondracek & Schulenberg, 1984; Jordaan and Heyde, 1979). It can also be a measure of personal self worth (Havighurst, 1953). Achieving an occupational identity is a necessary step in development, and the inability to obtain or decide on one's occupational identity is the major source of upset to adolescents (Erikson, 1968). Vondracek (1993) discusses the importance of helping children and early adolescents begin vocational development, through such activities as early exposure to work and employment, in order to assist them in formulating a vocational identity later on in adolescence.

The School's Place in Career Education

To aid in this process, schools have assumed much of the responsibility for preparing adolescents for a place in the work world (Grub, 1989; Herr & Cramer, 1992). Grub discusses the history of career education in the United States:

> Both a criticism and an extension of vocational education, career education began in the early 1970s with the view that schools were doing a poor job of preparing young people for work, and proposed to orient every element of curriculum around preparation for careers—broadly defined to include "preparation for all meaningful and productive activity, at work or at leisure, whether paid or volunteer, as employee or employer, in private business or in the public sector, or in the family." While its vagueness made career education hard to implement, the early efforts concentrated on a combination of career exploration courses to familiarize students with a variety if *[sic]* careers and specialized skill training akin to variety of vocational training. A more radical departure from conventional school patterns was the experienced-based career education (EBCE) model, in which students would combine work and schooling, sometimes with a variety of different work placements so that career exploration could occur in a variety of jobs rather than in the classroom. (p.26)

Career education has likely followed a similar path in Canada. In the province of Alberta, schools have taken on the responsibility for assisting students in career development through the Work Experience program and units in such courses as Health and Personal Life Skills and Career and Life Management. Alberta Education (1984) has outlined the position for Alberta schools:

> As young people remain in school for longer periods, the responsibility to assist them in their career development is greater than ever. School programs should provide pupils with an awareness of career possibilities and the information and skills necessary to make intelligent decisions. (p. 5)

Alberta Education (1984) has stressed that with the high levels of youth unemployment and the difficulties that many adolescents and young adults face in making the transition from school to the workplace, the implementation of career development programs is increasingly necessary. Current changes in the job market are forcing people to receive more training than ever before in order to prepare for work. Labor force shifts such as the increasing numbers of women in the work force, the decreasing number of jobs in agriculture, and the fact that achieving a degree or diploma no longer guarantees a job all mean that a more highly skilled, better prepared labor force is required. Students must be prepared for this reality.

Information about occupations is seen as an essential component of career-development initiatives in schools. "If it is desirable for adults to help youths in anything, it is clearly desirable that our schools offer guidance in career development. Guidance is *not* deciding for young people, but rather providing information that is essential for their own decision making" (Gribbons & Lohnes, 1982, p. 2). However, information about the world of work may not be adequate in the future. Changes in the workplace will possibly decrease the amount of time we will spend at actual work and increase the amount of time we spend at leisure activities. Thus those involved in helping youth prepare for their future will have to be "more creative" in helping adolescents develop skills and lifestyles suitable for a future economy (Neufeld, 1992). There will be a need to prepare for our leisure, as well as the time spent at paid work. A knowledge of personal interests, values, and abilities, coupled with a knowledge of occupations, the labor market, and so forth, will be needed in preparing for the workplace of the future.

Oppositional views have been voiced concerning the efficacy of schools addressing the career development of adolescents. For example, Heinz (1987) contends that during periods of economic transition, when it is difficult for young people to obtain jobs, youth remain in school for longer periods of time.

> School then takes on the function of a warehouse; it is a place to mark time. At the same time school acts as a sociopolitical instrument for reducing social and political conflict and this function gains predominance over its main function of educating young people. (p. 132)

Grub (1989) maintains that career guidance in school has no influence over employment following school, and he attributes this to underfunding of the programs. One result is that many students do not have access to guidance counsellors. Moreover, school career guidance can offer only limited information about occupational alternatives and is usually focused on school courses and training/education programs rather than opportunities in the labor market. Super (1984) contends that assessment methods used in career-education activities in schools are misused, particularly when given to adolescents who lack information about careers and occupations. Students' scores on an interest inventory, for example, will likely have little meaning because "if a student has given little thought to occupational choice or to the unfolding of a career, that student is not likely to be ready to use aptitude, ability, interest, or value data in planning the next stage or steps in a career" (p. 226).

Whether it be that schools are only holding students during periods of economic transition and are not truly educating or preparing them for the workplace, or that efforts at career education are only superficial attempts that do not provide information and aid to students at a level which they can use effectively, the situation remains unchanged. Preparation for future work is a major part of young people's lives. The need to assist students in their career development has been recognized; however, the success of attempts by schools to help youth in this phase of development has been questioned.

Situation of Students

Decisions that adolescents make in junior and senior high school when determining high school programs can greatly affect the post-secondary training that they will be able to access. However, as Lerner and Galambos (1984) state, this period may be very difficult for adolescents, socially and emotionally. To add to it the responsibility for future career planning is worrisome.

> Precisely at the time in life when individuals may be least ready to make a long-term choice, they are often required to do so. In order for adolescents to commit themselves to a certain role in society and to adjust to the larger world, they must know their interests, attributes, skills, and capabilities. In short, adolescents have to know themselves, something that is not simple, considering the multiple changes that the adolescent is experiencing. (p. 10)

The adolescents of the twentieth century in industrialized countries are the first ones in history who must prepare themselves for a future world of work without direct instruction from their parents. No longer can most adolescents rely on their parents to teach them the work they will do when they grow up (Stern & Eichorn, 1989). It is not as though adolescents are unaware or unaffected by their situation. Neufeld and Ferner (1993) found, in their survey of students from Grades 6 through 9 in Saskatchewan, that occupation- and career-related matters were the biggest concerns of students regardless of their age and gender. Apprehension in this area was greater than concerns about home, family, and school life. Students responded that they were troubled about such issues as deciding on a future occupation, being unemployed in the future, and having information about various careers. This anxiety about the future has been noted by other studies (Posterski & Bibby, 1988; Bibby & Posterski, 1992). Such concern may be the result of the economic conditions that these youth face. They may, for example, themselves have difficulty finding work, or their parents may have been affected by transitions in the labor market (Neufeld & Ferner, 1993). It is probable that our youth are influenced by their knowledge of the changing economy.

> Competitiveness, downsizing, restructuring pitched against unemployment statistics are common media messages that our middle years children are incorporating into their world of education. With such pressures, they find it difficult to clearly define a career path or a career development program. (Globa & Sotas, 1993, p. 8)

The difficulty that many youth have in making the transition from school into a meaningful role in the world of work may have serious individual and societal consequences, according to Heinz (1987), who writes of the situation in West Germany. Training for a job and obtaining one are important milestones in a person's life, not only for one's vocational development, but also for other aspects of a person's "development and exercise of social and political capabilities through which personal and social interests can be represented" (p. 138). Such factors as youth unemployment and failure to receive training and move into a field of interest can have negative effects. "The transition from school to work today is fraught with discontinuities and breaks, although its importance for the development of personality, values, self-confidence and social responsibility is as undisputed as ever" (p. 138). Vondracek's (1993) review of the literature agrees with this contention.

Grub (1989) states that more career knowledge and more and better career guidance will not put an end to youth unemployment and that perhaps we should reconsider the obsolete idea of a certain period of schooling being followed by work. Schooling and work are becoming more integrated, and career decisions are not irreversible, as evidenced by the return to school by many adults. According to Grub, the opportunity to pursue training and education later in adult life means that youth may, in the future, feel less pressure to make vocational decisions during adolescence and can, instead, focus on social and sexual-development issues. However, the failure of youth to plan for their future careers has major societal costs. Employers and social insurance systems must pay heavily as youth move through periods of unemployment and retraining in their attempt to find an occupation that interests them (Jarvis, 1991). A lack of knowledge concerning occupations may be one reason many youth find it difficult to prepare in adolescence for a future career.

Lack of Knowledge

Much research demonstrates the fact that youth are not aware of information about the labor market, career opportunities, and specific information concerning various jobs (Otto, 1991). The longitudinal Career Pattern Study of originally male ninth graders in Middletown, New York, concluded that most male ninth and twelfth graders knew little about their preferred occupation. They knew most about the educational and training requirements of possible future jobs, but little about duties, job requirements, and the like (Jordaan & Heyde, 1979). As compared to three years previous, Grade 12 males knew more about the significant characteristics of jobs that interested them. They also had more specific plans on how to obtain training and job experience. Half of the Grade 12s, however, did not demonstrate more realistic or clear plans than did those in the ninth grade (Jordaan, 1974).

> While they are better informed about occupations than they were in the ninth grade, most eighteen-years-olds *[sic]* still know relatively little about the occupation they think they might enter. Only about half have well-thought-out plans for preparing for the occupation. (p. 274)

This lack of knowledge is of importance to those concerned with youth career development because, despite efforts at career education, even in Grade 12 students' career plans are often not well formulated and do not coincide with later work paths (Jordaan & Heyde, 1979). The lack of information concerning career information and the labor market may be due to the fact that, rather than focusing on occupational information, career guidance and counselling, have focused on the following:

> internal procedures of the high school, leaving students no ready access to labor market information. To the extent that any occupational decisions are made at this level, they become educational decisions about whether or not to go to college, rather than decisions based on full knowledge of opportunities and requirements. (Grub, 1989, p. 20)

Grub attributes this to a lack of funding and the inability of guidance and counselling to reach all students.

Whatever the reason, students lack information about the world of work, and what adolescents do know "is often interwoven with fantasy and unrealistic expectations" (McKenna & Ferrero, 1991, p. 168). This opinion is in agreement with the findings of Bibby and Posterski (1992). Of the 3,600 Canadian teenagers surveyed, 60% expected to graduate from university despite the fact that only 10% of their parents were university graduates. Almost 85% stated that they expected to get the job they wanted after they graduated. These authors contend that it may be societal expectations that contribute to the unrealistic dreams of adolescents.

> In Canada, we have a sort of educational caste system. We extol the virtues of a university degree and relegate everything else to second-class status. Young people set their sights accordingly. At least 50 per cent of 15- to 19-year-olds expect to pursue their dreams and graduate with a degree. In reality, only 15 per cent even get in the registration lines. We are guilty of cultural overpromising. Young people are being duped. The same pattern is true for those who plan to pursue post-secondary vocational studies. Approximately half of those who hope to keep going to school actually make it to a community college or vocational campus. (p. 230)

The inability to make appropriate plans for the future may be one explanation for the findings of Gribbons and Lohnes' (1982) 20-year longitudinal study of career development. One third to one half of 25-year-olds are in what they termed "career development trouble" (p. 127).

Thus, in addition to facing a future world or work that is changing dramatically from that of the past, youth face a number of other difficulties. They are often forced to make decisions that affect their future careers at a time when they may not be cognitively or emotionally prepared to do so. They are confronted with the possibility of unemployment, and despite reporting that they are concerned about their place in the world of work, they often have difficulty perceiving their future realistically.

Career Development Research

Much of the research into career development has focused on the period of adolescence. Interest in how prepared youth are to make decisions concerning their future and how they go about making such decisions led to the movement of inquiry into career, or formerly, vocational, maturity. Betz (1988) states that theories of career development and maturity began with the work of such researchers as Ginzberg, Ginsburg, Axelrad, and Herma in 1951, Super in 1957, and Tiedeman and O'Hara in 1963. The majority of the investigation into the construct of career maturity has rested with the period of adolescence (Betz, 1988). In earlier studies, adolescence was seen as the pivotal point in career development—following a decision, one would lead into a career. Super (1980), among others, has expanded this model; however, for the purposes of this research, information pertaining to the adolescent period will be the focus of discussion.

Super's Theory

Super's (1957, 1963; cited in Borow, 1982) theory has been described as one of the most comprehensive models of career development due to the inclusion of concepts from differential, developmental, and phenomenological psychology. Indeed, "Super's conceptualization of occupational behavior in pre-employed youth, more than most others, transcends decision making per se and broadens the account to include movement toward psychological autonomy, growth of occupational awareness, and acceptance of responsibility for one's life planning" (p. 24). Super (1955) defines *vocational development* as "one aspect of individual development." Work is seen as one "medium" that expresses an individual's personality, similar to such other activities as socializing or intellectual activity. "Like other aspects of development, vocational development may be conceived of as beginning early in life and proceeding along a curve until late in life" (pp. 152-153).

Similar to Havighurst's (1953) propositions, Super (1963) assumes that each individual moves through a series of stages and that each stage involves certain tasks with which the individual must successfully cope in order to move on to the next substage or stage.

> The tasks the individual must learn—*the developmental tasks of life*—are those things that constitute healthy and satisfactory growth in our society. . . . *A developmental task is a task which arises at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by the society, and difficulty with later tasks.* (Havighurst, 1953, p. 2)

According to Super, each individual moves through a "maxicycle" of five life stages in his career development: growth, exploration, establishment, maintenance, and decline. The exploratory stage may be further subdivided into the fantasy, tentative, and realistic phases; and the establishment stage is made up of the trial and stable phases. "A small (mini) cycle takes place in transitions from one stage to the next or each time an individual is destabilized by a reduction in force, changes in type of manpower needs, illness or injury, or other socioeconomic or personal events" (Super, 1990, pp. 206-207).

Super's Exploration Stage

Super (1963) describes the middle adolescent of 14 to 18 years as being in the exploratory stage. During this phase of development the adolescent must complete the developmental task of crystallizing a vocational preference or formulating a general vocational goal. Crystallization is viewed as mainly a cognitive process.

> During this period the teen-ager is expected by society to begin to formulate ideas as to fields and levels of work which are appropriate for him, self and occupational concepts which will enable him, if necessary, to make tentative choices, that is, to commit himself to a type of education or training which will lead him toward some partially specified occupation. (p. 82)

Vondracek and Schulenberg (1984) review Super's theory and describe this period as a time for reality testing, when adolescents attempt to determine if their abilities and opportunities will enable them to pursue a preferred field. It is also the time when they make important educational and training decisions. During this time the adolescent may gain work experience. As well, while completing this task, an adolescent can become aware of factors that affect vocational goals, formulate a generalized vocational preference, acquire information about a preferred occupation, and differentiate personal interests and values. Knowledge of oneself and of the world of work appear to be imperative to the successful completion of this task. Following this period, the adolescent or young adult moves on to the task of specification of a vocational preference and, later, implementation of a vocational goal (Super, 1963).

This same developmental concept appears to have been adopted by Alberta Education (1984) in its discussion of students' career development (see Figure 2-1). A model of career development is discussed where children in the primary school are stated to be in a stage labelled "awareness." In order to address this stage, focus is placed on self-awareness, awareness of others around students, the meaning of work, and the types of work in the students' environment. Students in junior high school are said to be in an "exploratory stage" where they "have the opportunity to explore, observe and experience the world of work, and to develop a more complete understanding of their own skills, interests and abilities as they relate to vocational choice" (p. 9). General objectives are discussed, such as an exploration of occupational clusters and general working conditions, education, training and preparation requirements for entry into jobs, as well as knowledge of the senior high program necessary for entry into an area of interest. In the high school years the students are said to enter the stage of "exploration and preparation," where they begin to prepare for entry into post-secondary training or the world of work. The process of career planning continues on throughout life—as emphasized by Super.

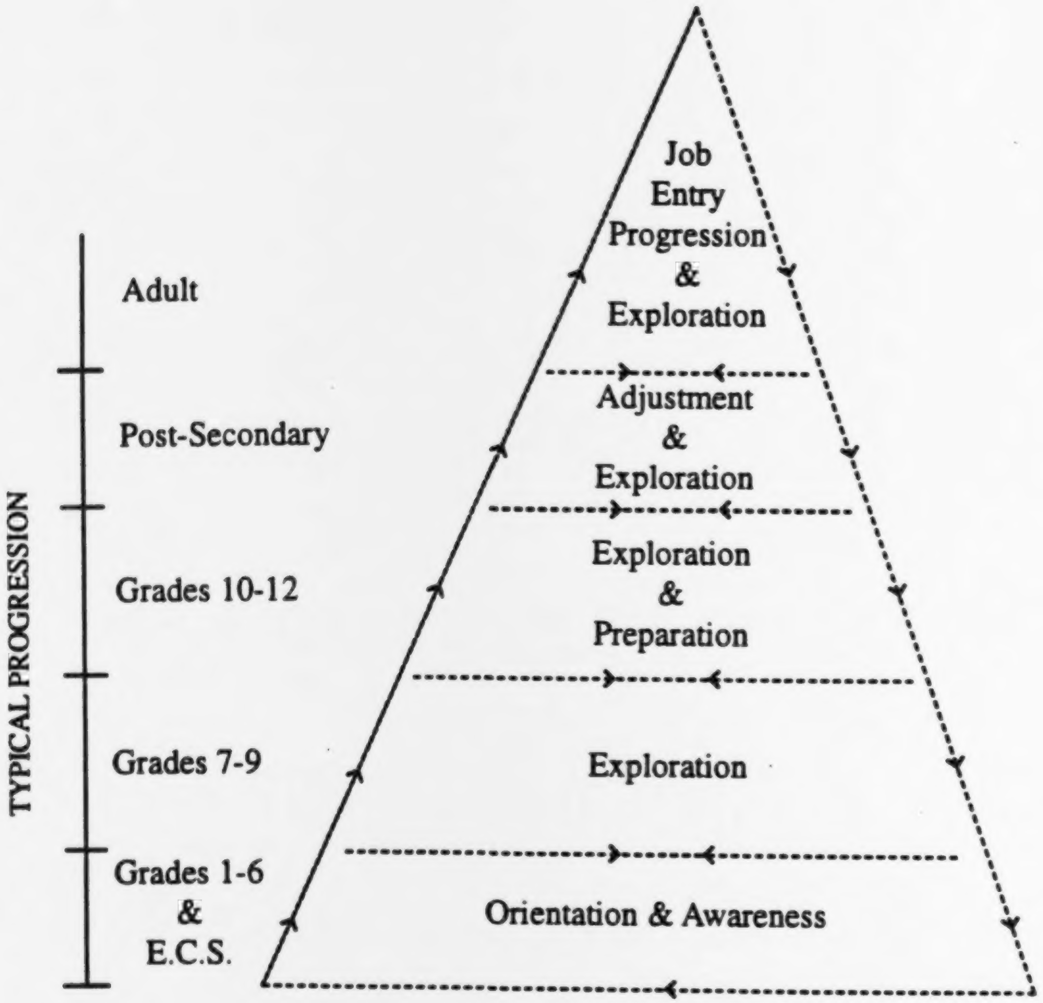
Super (1984) reviews how career-development theory has been implemented in the schools. He states that the stages have been locked with specific age groups: Awareness is the domain of the elementary years, exploration is seen to take place in junior high, and preparation begins in the tenth grade.

> Unfamiliar with the literature on career development and even with the fact that therein lay their theoretical base, the leaders and the numerous uninitiated practitioners failed to realize that, for many youths, awareness of the world of work, careers, and occupations needs to be cultivated throughout the high school years and that exploration goes on into the late teens and twenties. (p. 223)

Despite this criticism, it can be assumed that students in junior and senior high school are likely in need of occupational information as they explore various careers, define their own areas of interests, goals, and skills, and begin to consider various occupations for their future.

Figure 2-1

Model of Career Development


TYPICAL PROGRESSION
Adult
Post-Secondary
Grades 10-12
Grades 7-9
Grades 1-6 & E.C.S.
Job Entry Progression & Exploration
Adjustment & Exploration
Exploration & Preparation
Exploration
Orientation & Awareness

(Alberta Education, 1984, p. 8. Used by permission of Alberta Education, as represented by the Minister of Education, and the Special Education Branch.)

Career Maturity

The study of students' level of occupational knowledge is grounded in the concept of career maturity. "The measure of career maturity represents a relative strength in the career development literature" (Chartrand & Camp, 1991, p. 10). According to Westbrook (1983), the term *career maturity* was coined by Crites in 1973. The original term, *vocational maturity,* was envisioned by Super (1955) to be a quotient: the ratio of vocational maturity to chronological age. This construct was to provide information of "the status of the individual on a behavioral scale of development, and his status viewed in relation to his age" (p. 153). Although this has not transpired, the term career maturity appears to have some common meaning. For example, the construct has a number of different elements (Westbrook, 1983; Westbrook, Sanford, O'Neal, Horne, Fleenor, & Garren, 1985) , and it reflects the developmental level of a person and how that individual is coping with the developmental tasks associated with that level (Super, 1963; Jordaan & Heyde, 1979). Betz (1988) reviews this construct:

> To summarize, career maturity can be generally defined as the extent to which the individual has mastered the vocational development tasks, including both knowledge and attitudinal components, appropriate to his or her stage of career development. Maturity is assumed to be an underlying psychological construct reflecting this developmental level, just as intellectual, moral, and social development are assumed to be psychological constructs. (p. 80)

In addition, the construct is interrelated with other variables—biological, social, and psychological—and "should be viewed as a function of total human development" (Jyung & Miller, 1990, p. 13). It is assumed that those with higher levels of career maturity will likely "be more satisfied with their career plans" than those with lower levels (Westbrook et al., 1985, p. 340).

The concept of career maturity is probably best represented by the developmental theories of Super and others that emphasize developmental tasks, self-concept and self-esteem (Osipow, 1990). Betz (1988) contends that there appears to be strong evidence of a cognitive component, and the possibility of attitudinal and behavioral dimensions to the construct of career maturity requires further research. The cognitive component is said to consist of occupational information and knowledge of decision-making processes, and it is related to academic achievement. She calls for more study of the relationships among the three dimensions.

Career-Maturity Measures

There are three commonly used measures of career maturity. *The Career Maturity Inventory (CMI)* (Crites, 1973) is perhaps the most extensively studied measure (Betz, 1988) and is based on his structural model of career maturity. It purports "to measure the maturity of attitudes and competencies that are critical in realistic career decision making" (Crites, p. 3). *The Career Development Inventory (CDI)* (Thompson & Lindeman, 1981) followed early longitudinal research by Super, Crites, Hummel, Moser, Overstreet, and Warnath (1957) of the career development of, initially, ninth-grade boys. Similar to the CMI, the CDI measures attitudes, knowledge, and skills associated with career maturity. *The Cognitive Vocational Maturity Test (CVMT)* (Westbrook & Parry-Hill, 1973) focuses primarily on the cognitive component of career maturity. Betz describes the CVMT as assessing "the degree to which students know and can use occupational information" (p. 99). Unlike the CVMT, the CDI and the CMI measure aspects of job knowledge as only one facet of career maturity. A study of these three instruments determined that the CVMT and certain subtests on the CDI and CMI measure a similar construct assumed to be an aspect of career maturity, termed *occupational knowledge* (Westbrook, 1976).

A number of criticisms of career-maturity measures have been espoused, particularly in reference to reliability and validity issues (Betz, 1988; Westbrook, 1982). Betz calls for structural or path models to determine and specify the variables within which the construct of career maturity occurs, and she provides an example of a hypothetical model. This model describes an individual's level of career maturity as having such possible antecedents as the person's level of intelligence, the "extent of career-related experiences," and the extent to which she has accepted middle-class values (p. 127). In Betz's model, making a realistic career decision and "vocational success and satisfaction" are suggested as being possible consequences of an individual's level of career maturity (p. 128).

Variables Related to Career Maturity

According to the literature (Jordaan, 1974; Jordaan & Heyde, 1979; Gribbons & Lohnes, 1982; Young, 1983; Super, 1990; Jyung & Miller, 1990; Herr & Cramer, 1992), there are numerous possible influences on an individual's level of career maturity. Such variables as academic achievement, intelligence, gender, parental socioeconomic status, personal interests, values, and self-concept, as well as the opportunities to which one is exposed, have been found to be related to a person's career pattern or career choice and level of career maturity. In addition, such factors as location (urban or rural), work experience, school curriculum, parental occupational level, as well as career decision, vocational and educational aspiration, grade, career-development program, and individual locus of control, have all been found to influence a student's level of career maturity. Vangelisti (1988) provides a review of the literature examining the socialization influences on adolescents' vocational development.

A discussion of potential influential variables salient to this research follows.

Occupational Knowledge

Occupational knowledge is an important prerequisite to any career decision making and it is the basic component of career maturity. Borgen and Young (1982) state that "most frequently, occupational knowledge has been identified and measured as the extent to which children and adolescents possess and can demonstrate accurate and realistic knowledge about certain occupations and/or their preferred occupation" (p. 37). A review of the topics that are encompassed by the term *career information* provides a comprehensive listing of the information that may be included in a description of the content area of occupational knowledge. According to Perlmutter Bloch (1989), career information includes

> details about occupations and specific jobs; details about industries and places of work; information about appropriate behaviors on the job; understanding of the preparation needed for specific occupations and where to get the preparation; details of information about the programs and institutions in which education and training are offered; job-seeking, job-changing, and entrepreneurial skills; and an appreciation of the effects of the kind of work performed and the money earned on the other aspects of life. (p. 120)

Popular measures of career maturity, such as the CDI and the CMI, as well as the CVMT, place differing amounts of emphasis on occupational knowledge. The World of Work subtest of the CDI (Thompson & Lindeman, 1981) was designed to tap the knowledge associated with the exploratory and early establishment stages of Super et al.'s (1957) theory. Thompson and Lindeman contend that occupational knowledge and career awareness are important components of career development. Knowledge of occupations is necessary in exploration, decision making, and reality testing—three of the four steps of career counselling in Crites' (1974) model of career development (as discussed in Grotevant & Durrett, 1980, pp. 171-172). According to Crites (1973), knowledge of the world of work is "critical to realistic career decision making (p. 35). This is in agreement with most theories concerning adolescent vocational development: "Once children have reached the requisite level of cognitive and physical maturity, they must acquire some knowledge and understanding of work" (Vondracek, 1993, p. 280).

Borgen and Young (1982) assert that despite the necessity of occupational knowledge to career decision making, it is not until the senior years of high school that adolescents are able to use occupational information in any sort of career decision-making process. Several studies have concluded, however, that many adolescents, even at the later stages of adolescence, lack information about the world of work or occupational knowledge (Jordaan & Heyde, 1979; Grotevant & Durrett, 1980; McKenna & Ferrero, 1991; Otto, 1991). For example, Grotevant and Durrett found that students lacked accurate information about the educational requirements of careers that they wished to enter and the vocational interests and work environments normally associated with their chosen fields. Only approximately 50% of the students they studied who said that they knew about their first career choice even planned to acquire the necessary amount of education needed to enter that occupation. McNulty and Borgen (1988) determine that in the majority of cases, students' ideal and real occupational aspirations were not even in the same field. Such findings may reflect a lack of vocational cognitive complexity, as discussed by McDonald and Jessell (1992). These researchers warn that the ever-increasing technological society in which we live "requires a synthesis and integration of vast amounts of information; young adolescents lacking in cognitive vocational complexity will likely experience difficulty in locating and maintaining satisfying and stable employment if restricted attitudes and perceptions continue" (p. 247).

The amount of career information provided to students has been found to be positively associated with the range of career alternatives that they have considered (Harris & Wallin, 1978) and the "congruence between personality and occupational choice" (Grotevant, Cooper, & Kramer, 1986, p. 211). McDonald and Jessell (1992) summarize their findings and state that those students who scored high on the CVMT

> viewed a broad range of occupational options available to them and expressed confidence in their abilities to function successfully in a number of occupations. Conversely, young adolescents assessed as

> much less cognitively complex indicated fewer occupational preferences and evidenced decreased confidence to perform the tasks of a given occupation. (p. 247)

Direct contact or exposure to occupations may be an important means of increasing occupational knowledge (Wehrly, 1973; Fadale, 1975; Taylor, 1985).

Occupational knowledge may also affect occupational aspirations and expectations in that students who are more informed tend to want higher status positions (Koppel & DelRoccili, 1982), and although more knowledge does not directly mean attaining higher occupational status, it may have a 'socialization' effect on career attitudes and plans which, in turn, impact positively on attainment (Howell, 1978, p. 334). Increases in occupational knowledge do not improve labor-market success (Hamilton & Crouter, 1980; cited in Grub, 1989, p. 28); however, occupational knowledge has been said to be a prerequisite for a smooth school-to-work transition. For example, an awareness of the jobs for which one is qualified makes a job search more efficient and productive. As well, knowledge of occupations may better enable an individual to promote skills and training as being suitable for a position with potential employers (Taylor, 1985; Koppel & DelRoccili, 1982).

Location

Statistics Canada (1994) reports that the majority of Canadian adolescents live in urban areas. However, 26% are classified as living in rural areas, and it is this one quarter of youth which is of concern in this study. Much has been written concerning the disadvantages that those students living in rural areas must face. For example, Barker (1985) finds in a national U.S. survey of curricular offerings that students in small high schools, as are presumably often found in rural areas, are at a "curriculum disadvantage." Of the 105 courses surveyed, 35.2% were offered at significantly higher frequencies in the large schools, and only 1.9% of the courses were offered at significantly higher frequencies in small schools. This discrepancy in curricula offerings has been noted by others (Apostal & Bilden, 1991; McCraken & Odell, 1988), and the disparity may limit rural adolescents' exposure to various fields of study and, therefore, to future career opportunities. In Alberta such initiatives as Distance Education may be an attempt to alleviate such variation and make courses available to all students despite their location.

In the area of future career planning, rural students may face other difficulties. For example, McKenna and Ferrero (1991) find that more rural students than their urban and suburban counterparts thought that their preferred future occupation was stereotypical for their sex. As well, rural students, according to their self-reports, felt that they had received the smallest amount of information about nontraditional careers. Rural students may also suffer from reduced access to higher education and less exposure to the world of work (Apostal & Bilden, 1991; Elliott, 1987). Fear of the unknown may inhibit those students who live in rural areas from pursuing their educational and vocational aspirations (Elliott, 1987), because it often means leaving the community in which they live to receive further training. Rural youth may be limited in the variety of attitudes and values to which they may be exposed (Stein, 1977). Because of their location, they may also lack role models in various careers (Elliott, 1987; Apostal & Bilden, 1991; Jeffery et al., 1992). Role models often provide youth with needed support and evidence that one can, indeed, successfully pursue an occupation; furthermore, they may be important determiners of adolescents' level of career maturity (Lawrence & Brown, 1976). Elliott (1987) reports that "those students considering non-traditional careers, those not modeled or testable in the rural community, often based their aspirations on insufficient or inaccurate information" (p. 13). The misinformation that rural students may face could result in their failing to pursue an occupation or becoming disillusioned with it once achieving a position. Jeffery et al. summarize their concerns about the situation that rural students encounter:

> Virtually all career-counselling packages and supports carry what might be termed "an urban assumption." Most products and approaches to career counselling assume, for example, that the users have relatively easy access to sources of information or job-related experiences. Use of mentors, manpower offices, job shadowing or libraries replete with career information and pamphlets are assumed to be readily available if the end-user has the appropriate guidance and is offered the necessary skills needed to avail him or herself of the resources. . . . Many resources, including exposure to a variety of jobs and careers or an exposure to diverse role models, just do not exist in many rural communities. There may, for example, be very few careers, possibly all very traditional, available in the community. (p. 253)

Adolescents' level of occupational knowledge may be influenced by the amount and type of jobs with which they have direct contact (Wehrly, 1973; Rich, 1979). Rich makes the assumption that students living within urban areas are more likely to be exposed to a wide variety of occupations that reflect a broader range of the social strata than are their rural counterparts. If this is indeed the case, and if the majority of the occupations in a rural community are of low status, the rural youth will be more "familiar with low-status occupations than with high-status occupations. They will also tend to aspire to, and to choose, occupations of lower status than do urban youth" (p. 325).

Despite concerns of there being a curricular discrepancy, academically, rural students have performed better on a majority of subtests on a standardized achievement test than students living in urban areas have (Randhawa & Hunt, 1987). When comparing urban and nonurban students' levels of career maturity, there has been little evidence to state that rural students are at a disadvantage. Jyung and Miller (1990) found no significant relationship between location and students' level of affective, cognitive, and total career maturity; rural students were negligibly higher in career maturity than their urban counterparts were. One possible explanation that they provide for their findings is that the rural students may have had more work experience on farms, were planning to continue in farming, and were, therefore, more crystallized in their decisions. This latter explanation is also provided by Super and Overstreet (1960) to explain rural boys' higher levels of vocational maturity in the Career Pattern Study. Canadian studies have also found no rural disadvantage in the area of career maturity (Laurikainen, 1986; Neufeld, 1992). Laurikainen attributes this to the possibility that the rural students in her study lived in relatively close proximity to a large urban centre in Alberta. She suggests that if the rural students had lived in more remote communities, they would not have received as much exposure to urban occupations. She also states that her study did not determine whether there was a difference in students' knowledge of the range of occupations available. Neufeld (1992) finds that rural Grade 10 students, as compared to urban, scored significantly higher on the majority of subscales measuring students' attitudes towards work. However, he failed to control for such correlates as students' gender, achievement, intelligence, previous employment, or exposure to career information. He suggests that the differences he noted may be due to school size, the rural/urban locations, the types of communities in which students lived, their level of psycho-social maturity, or their differences in exposure to career-education programs. Without further study, controlling for such intervening variables as those listed by Neufeld, the issue of whether a rural/urban location affects one's level of career maturity is clearly debatable.

Intelligence/Academic Achievement

Many studies have considered the relationship between aspects of intelligence and students' levels of career maturity. Several researchers (Lawrence & Brown, 1976; Rich, 1979; Kelly & Colangelo, 1990) have found that higher intelligence (or aspects thereof, such as verbal ability) and/or higher academic ability are related to higher levels of career maturity, particularly with the cognitive domain (Jyung & Miller, 1990). Grotevant et al. (1986) stated that intelligence could contribute to adolescents' ability to develop congruence between career choices and their personality types; therefore, they controlled for this variable in their study's design.

Level of academic achievement has been associated with adolescents' levels of career maturity (Jordaan & Heyde, 1979; Khan & Alvi, 1983; Jyung & Miller, 1990), and it has been related to female students' aspiring to higher levels of education and more prestigious occupations (Holms & Esses, 1988). In addition to this, the findings suggest that the curricular program in which students are enrolled is also correlated with their levels of career maturity (Laurikainen, 1986; Khan & Alvi, 1984) and, more specifically, with their levels of occupational knowledge (Howell, 1978). Kelly (1992), however, finds that students in the gifted program, when compared to regular-program students, were not higher in career maturity; nor were they reportedly less in need of occupational information. Gifted students did, however, see fewer barriers to their career aspirations than regular program students did. The lack of difference in career maturity between gifted and regular-program students may have been due to the age of Kelly's sample. Students were in Grades 7 and 8, unlike in the other studies cited, where students were generally enrolled in senior high classes. Differences in students' career maturity may have been noted if older students had also participated, because age has been found to influence students' level of career maturity (refer to **Other Variables**).

Gender Differences

The question of whether gender influences students' level of occupational knowledge or career maturity has been considered. Using the Attitude Scale of the CMI, Kelly and Colangelo (1990) find no significant difference between female and male scores whether students are rated as gifted, regular program, or having special learning needs. Other studies of elementary and junior or senior high students have also found no significant sex differences when comparing students' levels of occupational knowledge (Wehrly, 1973; Rich, 1979; Grotevant & Durrett, 1980).

In contrast, Fadale (1975), in her research of children in Grades 4 and 6, determined that boys scored higher on a number of the subtests of *The Career Awareness Inventory.*

The large majority of research surveyed, however, finds girls to be higher in career maturity than boys. In reference to gifted students, Kelly (1992) determined that gifted boys expressed a greater need for occupational information than similarly labelled girls did. Using the CVMT, girls were found to be higher in cognitive vocational complexity, and they were more likely to be high in reported occupational attitudes and perceived occupational abilities (McDonald & Jessell, 1992). Females scored higher on the CMI, or portions thereof, in a number of studies (Westbrook, Cutts, Madison, & Arcia, 1980; Alvi & Khan, 1983; Berezowski, 1992). Herr and Enderlein (1976) comment that the girls in their longitudinal study started with higher levels of vocational maturity in Grade 9, and the disparity between the boys' and girls' scores increased by Grade 12. Westbrook and Sanford (1993) note that although the Grade 9 females they studied scored higher on the CMI, scores were not significantly different from those for Grade 9 male students. The tendency for girls to demonstrate higher career maturity scores was noted with Canadian Grade 12 students using the Career Development Survey (Khan & Alvi, 1984). Employing the CDI, the tendency for girls to score higher, particularly on the cognitive portion of the test, has also been found (Super & Nevill, 1984; Jyung & Miller, 1990; Kelly & Cobb, 1991). The propensity for females to score higher on career-maturity measures has been attributed to a number of factors. For example, the earlier maturation of females (Alvi & Khan, 1983; Jyung & Miller, 1990) or girls' more advanced verbal ability (Super & Nevill, 1984) have been provided as possible explanations. Berezowski suggests that the sexes require different instructional strategies in career guidance and development due to gender differences in career maturity; however, a number of variables, such as scholastic achievement, may influence these relationships and should also be considered (Jyung & Miller, 1990).

Aspirations

Cobb, McIntire, and Pratt (1989) make the distinction between *educational and career aspirations* and *quality-of-life aspirations.* According to these authors, educational and career aspirations relate to the value that one places on education, how much education one is willing to pursue, and the type of career to which one aspires. Quality-of-life aspirations refers to such aspects of a person's life as one's plans for a future family life, leisure activities, and home location. (In terms of this study, interest is with respect to students' education and career aspirations.) These authors state that aspirations are influenced by "the communicated expectations of the significant people who interact with the individual" (p. 12). Saltiel (1986) finds that the adolescents in his study seldom listed the same person as being a significant influence in both areas of educational and occupational attainment, and therefore he suggests that perhaps for adolescents, occupational and educational aspirations are quite distinct domains. In a study of 4,000 Grade 8 students in Toronto, parents or guardians were listed as the primary influence on adolescents' future plans (Larter, Cheng, Capps, & Lee, 1982), and this parental influence has been found in other studies (Bibby & Posterski, 1992).

As discussed previously, adolescents are often unrealistic in their education and career expectations for the future (Bibby & Posterski, 1985, 1992). For example, despite the low percentage of adolescents who actually enter into university, at least half of the students state that they have the ability and plan to or would probably go to university (Larter et al., 1982; Bibby & Posterski, 1988, 1992). Students tend to aspire to higher levels of education than they will likely achieve.

A number of studies have found that occupational knowledge specifically (Howell, 1978) and career maturity generally have a positive relationship with educational and occupational aspirations (Jordaan & Heyde, 1979; Jyung & Miller, 1990). "Even controlling for cognitive achievement and social background, knowledge of work tasks and requirements significantly affects occupational and educational aspirations and expectations" (Koppel & DelRoccili, 1982, p. 460). Students who know more about jobs tend to aspire to higher status positions.

There is also evidence of rural/urban differences in adolescents' aspirations. Laurikainen (1986) finds that urban students in Alberta had less well defined occupational aspirations and lower educational aspirations than rural students did. She questions whether the urban students saw more occupations available to them and, therefore, found a clear choice more difficult to make. Laurikainen also notes that her urban sample consisted of many students in business and technical programs, who were also less likely to report that they planned to attend post-secondary education, and this may have been a possible reason for her findings. Using data from the American *High School and Beyond* longitudinal study, Cobb et al. (1989) report that there is a significant difference in the educational and occupational aspirations of rural American youth.

> In terms of post-secondary educational aspirations, America's rural high school seniors aspire less often than their urban and suburban peers to continuing their education. And when they do aspire to post-secondary education, their expectations for the level of educational attainment are lower, their expressed levels of self-confidence in completing degree requirements are not as high and they don't expect to pursue further education for as long as urban youngsters.
>
> With respect to career aspirations, rural students, more often than their urban counterparts, expect to enter the work force immediately following high school. Moreover, their aspirations for specific careers or professions are generally at lower levels than their urban peers. (pp. 14-15)

One possible explanation of why rural students may express lower aspirations is provided by Elliott (1987) in a review of her study of rural students at risk of leaving school early. She states that the current economic recession and its effects on rural communities have had a major impact on rural students' goals, particularly upon those not intending to go on in school. "The future envisioned by many rural students includes either taking over the family farm or following parental footsteps into blue-collar employment. Students reluctantly acknowledged the fate of either of these plans but appeared powerless to replace them with new, more viable ones" (p. 21).

Gender differences in aspirations may also exist. Statistics Canada (1993b) reports that there are marked trends in the increase of women's participation in the labor force, up 20% in the last 20 years from 40% in 1971 to 60% in 1991. During this same time period, women accounted for 45% of the total labor force, up from 35%. Despite these increases, researchers have found females are still at a disadvantage, possibly due to occupational sex-role stereotypes (Gribbons & Lohnes, 1982). Guttman (1991) provides a review of the literature and summarizes that adolescents lack role models of career women. Moreover, female adolescents tend not to explore many occupations; they limit their careers by considering traditionally female occupations and taking traditionally female courses.

Some studies have noted gender differences not only in the influences on adolescents' aspirations (Saltiel, 1986), but also in the aspirations themselves (McCracken & Odell, 1988; Apostal & Bilden, 1991). Sandberg, Ehrhardt, Ince, and Meyer-Bahlburg (1991) note that, although there was no significant gender difference in the ideal career choices that students provided, there was a significantly higher proportion of same-gender occupations when the female students provided their "realistic" career choice. As well, as the girls in this study became older, they began to aspire to less traditional occupations; however, the boys continued to aspire to traditionally male occupations. These authors go on to state the findings of their longitudinal research:

> Marked gender differences were detected in childhood career aspirations with regard to whether the occupations are held predominately by adults of their own or the other gender. The gender difference in this aspect of career choice became even more pronounced during adolescence. (p. 382)

This is supported by the findings of Hewlett (1991) with a small sample of Grade 6 students. Despite reporting that both males and females could do a variety of careers, only 11% of the females and none of the males in her study chose nontraditional careers for themselves. Males and females also tend to express higher self-efficacy for their same-gender occupations than those held by the opposite sex, and males predominately choose male-dominated professions (Hannah & Kahn, 1989). Gifted boys also describe a broader range of career aspirations than gifted girls do (Kelly, 1992). In contrast, rural youth in North Dakota indicated high education and occupation aspirations, and the female high school students indicated significantly higher occupational aspirations than the males did (Apostal & Bilden, 1991).

Other studies have noted no significant gender differences in adolescents' aspirations for the future. Kammer (1985) reported that the post-high school plans of eighth graders were not significantly different, although boys tended to choose careers that involved things and girls tended to choose occupations that dealt with people. She holds that students are realistic in their expectations regarding what education is required for their career choices. "The number of students who indicated they planned to attend a college after high school is similar to the number of careers they selected that require a college education" (p. 23). However, she notes that more boys than girls indicated that they had a "strong chance" of reaching their career goals. McNulty and Borgen's (1988) findings dispute those of Kammer (1985) in that the majority of Canadian students in Grades 8 through 12 in their study did not have ideal and real occupational aspirations in the same field, and their choices may, therefore, be labelled unrealistic. However, they found that both genders were similar in their lack of agreement between career aspiration and expectation.

Socioeconomic Status

Other possible influences on students' level of occupational knowledge or career maturity are family socioeconomic status or parents' level of education, and/or parents' occupational level. The father's occupational level has been found to be correlated with boys' level of vocational maturity, and the relationship was noted to be stronger when the boys were in Grade 12 than in Grade 9; however, overall, the relationship was less marked than expected (Jordaan & Heyde, 1979). In contrast, Jyung and Miller's (1990) findings suggest a moderate relationship between career maturity and socioeconomic status (measured by parents' occupation level), and further, as the grade of the students increased, the strength of the relationship decreased. They conclude that socioeconomic status is more highly related to the cognitive domain of the CDI measure of career maturity. This correlation between measures of socioeconomic status and career awareness has been discussed by others (Fadale, 1975; Koppel & DelRoccili, 1982) who state that adolescents with higher status parents know more about jobs and job requirements. A number of studies have also found that a family's socioeconomic status, measured by one or both parents' occupation level, and/or education level, is related to their adolescents' educational and/or occupational aspirations (Baker, 1985; Holms & Esses, 1988; Hannah & Kahn, 1989; Sarigiani, Wilson, Petersen, & Vicary, 1990), expectations (Koppel & DelRoccili, 1982), and perceived occupational abilities (Hannah & Kahn, 1989; McDonald & Jessell, 1992).

Other studies have not found the same relationships. For example, several researchers have noted no direct relationship between a family's socioeconomic status and the child's level of career maturity (Lawrence & Brown, 1976; Rich, 1979; Super & Nevill, 1984). Khan and Alvi (1983) determined that the CMI scores of Grade 9 to 12 students in Ontario were correlated with their parents' education level but not their occupation level. Lawrence and Brown (1976) make the suggestion that instead of viewing socioeconomic status as a predictor of career maturity, counsellors should look rather at "persons in the environment who may serve as role models and/or information providers" (p. 50).

Family Influence/Role Models

Although not a direct focus in this study, the family, particularly parents, have been found to be a major influence on adolescents' career choices and development (Vondracek & Schulenberg, 1984; Cobb et al., 1989; Otto, 1991; Bibby &

Posterski, 1992). Larter et al. (1982) emphasize that "the influence of parents/guardians is, of course, extremely complex, for it involves many variables such as socio-economic status (which incorporates education and income), values and ethnicity" (p. 51). The influence of parents and other potential role models has been recognized. Research and programs that concentrate on providing career information to rural youth often focus on parents, as well as teachers, as valuable information providers to adolescents (Stein, 1977; Jeffery et al., 1992).

Location may be a strong determining factor in the influences that adolescents receive. Elliott (1987) asserts that students in rural areas may lack role models in a variety of careers that the adolescents could potentially consider for themselves. Because rural students have a limited exposure to various career-related role models, they tend to choose the occupations of their parents and teachers. "This may explain why many of those students intending to complete four-year college degrees aspired to careers in teaching" (p. 12). Others conclude that rural parents, teachers, and counsellors do not hold as high aspirations for their youth as those adults in more urban areas do, and this is reflected in the lower educational and occupational aspirations of rural youth (Cobb et al., 1989). In a discussion of ways to help rural parents support the career development of their children, Jeffery et al. (1992) offer an explanation:

> Parents want to help their children but often feel unable to do so. Many have had little world experience. Most have been unable to keep up with the ever-expanding information necessary to make well-informed decisions about careers. Encouraging parental involvement and enhancing their willingness and ability to support the career development of their youth becomes very challenging, especially since most career-related information and resources are located in distant centres inaccessible to most rural parents. (pp. 240-241)

Rural parents' limited knowledge of the jobs available to their children may be due to the fact that there is a lack of "economic diversity" in many rural areas. Often rural communities center around one industry or one resource (p. 245), and parents, like their children, lack exposure to the array of occupations available in other more metropolitan centres. Therefore, parental and other adult influences on a child's level of occupational knowledge may, because of their own lack of knowledge, limit that of the child.

Other Variables

Although not a focus in this study, other factors such as age (Fadale, 1975; Herr & Enderlein, 1976; Jordaan & Heyde, 1979; Rich, 1979; Borgen & Young, 1982; Jyung & Miller, 1990; Berezowski, 1992) and race (Lawrence & Brown, 1976; Westbrook, Cutts et al., 1980; Koppel & DelRoccili, 1982) have been found to be related to adolescents' levels of career maturity. Age has been found to be an important determiner of students' levels of occupational knowledge and career maturity. However, in this study an attempt was made to control for this variable by asking only Grade 9 students to participate. It was assumed that students in this grade are likely to be in Super's (1963) exploratory stage, and the tentative substage of early and middle adolescence, where they are carrying out the vocational developmental task of crystallizing a vocational preference and possibly identifying appropriate fields and levels of work. Studies concerning the influence of race on students' performance on career maturity measures have generally focused on Black and White students' scores, and such a comparison is not an issue in this current research.

Chapter Summary

In this review of the literature, a number of issues have been addressed that relate to the workplace and the influences on adolescents' preparation for the future world of work. The nature of work and the preparation required to work are changing in our society today. Schools have attempted, in varying degrees, to aid in adolescents' preparation for these changes, with questionable success. Currently, adolescents must make important educational decisions that affect future career opportunities at a time when they may be at a difficult stage of their lives as a result of physiological, emotional, and social changes. In addition, adolescents lack knowledge about the work world, and they may have difficulty realistically perceiving and preparing for their place in it. Based on the work of Super and others, it is assumed that the acquisition of knowledge and attitudes about work can be viewed as part of a career development process. The construct of career maturity has been used to help describe an individual's place in this process. Occupational knowledge is defined and discussed as an integral part of an individual's level of career maturity. Instruments have been devised to measure how much career maturity or occupational knowledge students have obtained and how this development compares to that of others their age. As can be surmised from this review of the literature, the factors affecting adolescent occupational knowledge and career maturity are varied, complicated, and interrelated. The variables assumed to be most salient to this research are students' location, level of academic achievement, gender, future aspirations, socioeconomic status, and family. As reviewed, there has been extensive research that has attempted to determine how these variables influence or interplay in influencing adolescents' career maturity and/or level of occupational knowledge.

CHAPTER 3

PROCEDURES AND METHOD

> *Teachers, counsellors, and parents are being challenged by our youth to give them directions in finding a useful place in our society. The new generations emerging as we approach the 21st century will likely work fewer hours per day and will have more hours for alternative activities. Consequently, the significant individuals in educational systems and the accompanying communities will need to become more creative in giving this new generation insights and courage to develop the appropriate life skills and lifestyles to survive in the new century approaching us. (Neufeld, 1992, p. 29)*

Introduction

The purpose of the current study is to compare the levels of occupational knowledge of two groups of students: those who live in urban centres and those who live in rural areas. The latter group of students are labelled *nonurban* throughout the current study. In order to compare the students' knowledge about vocations and jobs, participants were asked to complete the Cognitive Vocational Maturity Test (CVMT) and a questionnaire (refer to Appendixes A and B for a copy of the instruments used). As well, teachers of the students in the current study were interviewed in order to ascertain what activities students had participated in during the instruction of the Life Careers unit of the Health and Personal Life Skills curriculum. (Appendix C presents a summary of their responses.) Based on the literature reviewed in Chapter 2, a number of research questions were formulated.

Research Questions to Be Addressed

A. Items on the student questionnaire addressed students' level of academic achievement, occupational knowledge, socioeconomic status, occupational aspiration and educational expectation. What is the relationship of the measures of each of these variables to each other and to students' scores on the CVMT?

B. Is there a significant difference in CVMT scores based upon the students' school location?

   1. Is there a significant difference when correcting for the effects of gender and academic achievement?

C. Based on their school location, does students' socioeconomic status, as measured by their reports of their parents' highest level of occupation, significantly affect students' scores on the CVMT?

D. Based on their school location, does students' socioeconomic status, as measured by their reported family-income status, significantly affect students' scores on the CVMT?

E. Based on school location, does students' socioeconomic status, as measured by their reported yearly family income, significantly affect students' scores on the CVMT?

F. Based on school location, does students' socioeconomic status (calculated as the total sum of students' responses to questionnaire items 9/10, 12, and 13) significantly affect their scores on the CVMT?

G. Is there a significant difference in students' job knowledge based on their school location? Job knowledge is measured by the following:

   1. the highest level of job listed for which students stated that they knew the training and education requirements, the work conditions, and the duties;
   2. the total number of jobs for which students stated that they knew the training and education requirements, the work conditions, and the duties.

H. Based on school location, is there a significant difference in the students' highest level of occupational aspiration?

I. Based on school location, is there a significant difference in students' scores pertaining to their knowledge of the training/education requirements for their reported occupational aspirations?

J. Based on school location, is there a significant difference in the stated level of education that students expect to attain?

K. Based on school location, is there a significant difference in the scores that indicate students' feelings of preparedness to make decisions and plan for a future job/occupation?

L. Is there a significant difference between the mean CVMT scores of farm and nonfarm students?

   1. For each of the items in the questionnaire, is there a significant difference between the mean responses of farm and those of nonfarm students?

Research Participants

The Sample

The sample was taken from nine schools in three areas within the province of Alberta. In order to maintain the anonymity of the schools and the school districts, each school and district has been given a fictitious name by the researcher. Two nonurban schools, Rodeo School and Farm School, were located in the north-central region of the province. Two school boards in a large urban centre were approached, and two schools participated from each of the two school districts. These schools were said to reflect two different socioeconomic areas of the city. District C included East and West Schools, and District D included North and South Schools. One school district in the southeast region of the province was approached and three schools in this district, Diamond, Valley, and Dairy School, participated. A total of 204 urban students' responses and 154 nonurban students' responses were analyzed in this study. Information derived from the 1991 census concerning the population of each of the locations of the schools is outlined in Table 3-1.

Table 3-1

1991 Canada Census Description of School Locations

School	Classification	Pop./1991	Pop. density/ square km./1991
School District A			
Rodeo School	village	405	210.9
Farm School	town	1,692	506.6*
School District B			
Valley School	town	907	401.3*
Diamond School	village	416	222.5
Dairy School	village	461	187.4
School Districts C and D			
South School, North School, West School, East School	city	616,741	920.4

(Statistics Canada, 1992, pp. 101-106)

According to Statistics Canada (1992), "An urban area is an area which has attained a population concentration of at least 1,000, and a population density of at least 400 per square kilometer, at the previous census. All territory lying outside urban areas is considered rural" (p. 304). As is noted in Table 3-1, two of the schools, identified by an asterisk, are considered to be in urban areas because of their population density. In both cases, when this fact was mentioned to the staff of these schools, they commented that they considered the town to be rural in nature. When questioned further, they commented that the town's distance from a major metropolitan area; the attitudes, values, and beliefs of the students and families; the dress and interests of the students; and the nature of the communities themselves made them believe that the towns were rural and not urban. Analysis of students' responses to the student questionnaire indicates that in the case of Farm School in School District A, 46 students, or 66.6% of the participants, stated that they lived in a village or rural area. In the case of Valley School in School District B, all 16 students (100%) stated they lived in a village or a rural area. Therefore, it was determined that the majority of the students from these two schools could be considered to be from nonurban areas and were included as part of the nonurban sample.

The majority of research literature reviewed in Chapter 2 differentiates between the locations of research participants by using terms such as *rural* and *urban.* A term such as rural has varying connotations. For example, rural areas may often be viewed as farming or agriculture-based communities. At least two of the participating nonurban schools in this study, Diamond School and Farm School, were situated in communities that were said to have other industries that employed a large portion of the populations. Diamond School students reportedly had a number of parents involved in gas and oil field-related occupations; many students from Farm School reported that their parents were employed either by trucking companies or in a local mill (refer to **Description of Schools**). Such occupations do not coincide with what many would presume are rural occupations. Moreover, because two of the schools in the rural sample did not fit the Statistics Canada (1992) specifications for a rural area—Farm School and Valley School—it was decided by the researcher to refer to the school locations as urban and nonurban and divide the sample accordingly.

Description of Participating Schools

School District A

Farm School

Farm School has a student population of 428 students from Grades 7 through 12; 78 Grade 9 students participated in this project. Approximately 75% of the student population is bussed to the school from rural areas. One of the health teachers interviewed stated that it is his belief that academic achievement and future career planning are not seen as important to many students or their families. Out of the previous year's graduation class of 60 students, only 5 had since attended post-secondary education. The majority of families are not involved in agriculture but work for a local mill or trucking companies. Students seem to believe that they will have similar types of jobs.[1] The school offers a modified language arts and math program in the junior high classes for those students who have difficulty coping with the regular curriculum. These students' responses were not identified and were collected along with those of all other participating students.

Rodeo School

There are 140 students in the Rodeo School that includes students from Grades 7 through 12. One supervising teacher stated that 3 of the 29 participating Grade 9 students live in the village where the school is located, and the rest of the students live on farms. In the majority of families at least one parent also works away from the family farm.

School District B

Dairy School

Dairy School accommodates approximately 200 students from Kindergarten to Grade 9. All 34 of the Grade 9 students participated in the project. The school is located in a traditionally Mennonite community, and outside the village is a private Mennonite school. The majority of the students are bussed to the school from the surrounding rural area and from a village nearby that offers the communities an elementary school and a high school. The Grade 9 health teacher commented that students in Dairy School might have some difficulty with the wording on the CVMT because students' vocabulary skills were at a lower level than those of students in more urban areas (see footnote 1).

---

[1] Reference is made to the opinions of the health teachers at Farm School, South School, West School, North School, and Dairy School. These cannot be acknowledged outright due to the research and ethical agreements made with the participating school districts, schools, and teachers. It was agreed that the districts, school, and teachers who participated would remain anonymous.

Diamond School

Diamond School accommodates 65 students from Grades 1 through 12; all nine Grade 9 students took part in the study. Approximately 50% of the students are bussed to school from outside the village. Many of the parents, according to a junior high teacher, work for local gas plants and oil companies and at a local mill. Other parents reportedly commute to larger urban centers to work. Because of the school's small enrollment, many of the high school students take courses through Distance Education.

Valley School

Valley School has 276 students in the school (Grades 4 through 12), including 26 Grade 9 students. However, because the school offers an Integrated Occupations Program and some of the students were at their work experience on the day of administration of the project, only 16 students participated in the current study. Valley School draws its student population from two very small rural feeder schools, as well as an elementary school in the town. Another teacher, who was not interviewed, does specific career counselling activities for the high school students.

School District C

West School

West School was formally an academic junior high school and has maintained that reputation in the community. The school has approximately 345 students in Grades 7, 8, and 9; and 95 Grade 9 students participated in the current study. Unlike other schools, 75% of their school enrollment is not from feeder schools, but rather, students are brought to the school by parents or city bus. Students have generally affluent backgrounds because the majority of parents are professionals. The vice-principal stated that parents like the emphasis on academics in the school and the fact that the school is not located near any shopping malls (see footnote 1).

There are no home economics or industrial arts options available to the students due to the academic emphasis.

East School

East School accommodates 450 students in the elementary/ junior high school; approximately 225 of the students are in the junior high. The vice-principal stated that the school had been designated a "high-needs school" which enables them to obtain access to special funding and aides. They also offer a modified Integrated Occupations Program (IOP) in the junior high; however, students involved in this program were not excluded from participating in the project, nor identified to the researcher; therefore, their results are included in the data from this school. IOP at this school consists of modified and separate language arts and math programs for participating students. Of the 66 students who took part in the project, many appeared to the researcher to be first-generation Canadian and/or to use English as a second language.

School District D

South School

South School, an elementary/junior high school, accommodates 254 students, and 160 of the students are in the junior high. Twenty-nine students took part in this project. Few students come from the immediate suburb. Unless a junior high student lives within the school's vicinity, he or she must apply and be accepted to South School through the school district's Academic Challenge Program. Once a year for one week the junior high students attend a local high school to take home economics, computers, industrial arts, and other option classes because these are not offered at South School. The supervising teacher commented that the area in which the school is located has one of the highest socioeconomic status levels in the city (see footnote 1). Students at the school have travelled extensively and have been exposed to a great deal more of the world than students at other schools. She stated that many parents are presidents of companies or hold a similar level of job, and the students may feel a great deal of pressure to succeed.

North School

There are 230 students in North School, a junior high school. There are approximately 77 Grade 9s; however, only 58 students took part in the current study. In discussion, the school principal commented that there were a minority of quite wealthy students in the school who come from professional families and that a large portion come from single-parent and/or social-assistance families (see footnote 1). Two of the Grade 9 classes that participated had a large portion of school nonattenders, according to the principal. The school offers a work-experience program, "Service Program," for students. Those involved work at businesses in the community one afternoon per week. One of the Grade 9 teachers commented that many of the students work part time in the community and a large portion of students go directly into the labor market following high school (see footnote 1). She stated that approximately 30% of the school population have special needs, which she described as behavior disorders and adaptive disorders for which the school receives special funding. These students are in regular classes, and many, she stated, were in the classes that participated in this study. It was not made known to the researcher until the day of testing that students had not completed the Life Careers unit. However, a comparison of the mean of North School students' CVMT scores with that of East School (with reportedly a similar socioeconomic status) found that no significant difference in CVMT scores existed between these two groups of students. Moreover, students at North School appeared to have completed many of the same career-related activities as students from other participating schools (refer to Appendix C for a summary of instructional activities).

Table 3-2 provides a demographic description of the Grade 9 participants whose results on the CVMT and student questionnaire were analyzed. Included in this table are the number of males and females who participated at each school and the location of their homes.

Table 3-2

Demographic Description of Participating Students

School	Gender	Home location	
Farm School	37 males	town:	23 students
	32 females	village:	3 students
		rural area:	43 students
		(farm:	32 students)
Rodeo School	12 males	village:	3 students
	15 females	rural area:	24 students
		(farm:	22 students)
Dairy School	19 males	village:	10 students
	14 females	rural area:	23 students
		(farm:	20 students)
Diamond School	1 male	village:	5 students
	8 females	rural area:	4 students
		(farm:	4 students)
Valley School	7 males	village:	8 students
	9 females	rural area:	8 students
		(farm:	8 students)
West School	29 males	city:	72 students
	43 females		
East School	34 males	city:	60 students
	26 females		
South School	15 males	city:	26 students
	11 females		
North School	26 males	city:	46 students
	20 females		

Description of Health Programs

Participating health teachers were interviewed concerning the instruction of the Life Careers unit of the Grade 9 Health and Personal Life Skills curriculum (refer to Appendix G for sample interview questions). Nine health teachers from six schools (Farm School, Dairy School, Diamond School, Valley School, West School, and South School) were interviewed. The Life Careers unit had not yet been taught at North School; therefore, only one of the health teachers was briefly interviewed. The health teacher at East School was interviewed by phone. Although the researcher met the health teacher at Rodeo School, he was unavailable for an interview and did not respond to further requests to arrange a time to complete an interview. Refer to Appendix C for a summary of teachers' responses to the interview questions.

Data Collection

Procedures for Approval

The researcher initially applied to each of the participating school districts to obtain ethical approval for the study. Each district received a letter of introduction, a copy of the student questionnaire, a copy of the parental information/permission form, and a copy of the sample list of questions to be asked of the teachers who taught Health to the Grade 9 participating classes (refer to Appendixes H, B, I, and G for copies of these documents). A copy of the proposal was offered; however, none were requested. Once approval was given by the superintendent of the nonurban districts, the principals of each of the schools who were eligible to participate were contacted. In the urban centre, schools reflecting two socioeconomic areas of the city were requested. Notice of approval was given by mail from the central office of the two urban school boards, and principals were then contacted by phone. A change in the format of the parental permission form was requested by one of the urban school districts, and this was accommodated (refer to Appendix J). Letters of introduction and explanation were sent to each of the teachers who taught Health and whose students were participating in the study (refer to Appendix F). In all but one case, parents were informed of the study through the use of the parental information/permission form (refer to Appendixes I and J). In the case of one school, the principal notified parents of the study through a school newsletter, and he did not indicate to the researcher that any parents refused their children permission to participate. Therefore, all students who participated in the study had parental permission to do so either by written consent or lack of parental refusal. At all schools where there were students who were not allowed to participate, the teacher in attendance or the principal indicated which students could not take part, and those students either remained in the class completing another activity or left the classroom to do other work. The researcher was never informed as to the identity of the students or their reasons for lack of permission.

Pilot Study

Students were surveyed in a pilot study over a three-day period at a school in north-central Alberta. The pilot study was completed in order to ascertain the need for any revisions to the administration procedures, the student questionnaire, and the CVMT. The students from this school were chosen because the researcher had previously taught in the school and she was able to obtain access easily. Students were tested during their regularly scheduled health class, and 51 students completed the questionnaire and CVMT. Students were invited to comment in writing or in person on the wording of the questionnaire, as well as to give their impressions about the test. Those students who commented gave mixed reviews about the difficulty and length of the test. No concerns were raised by students or supervising teachers about the wording of the questionnaire or the administration procedures. Based on this pilot study ($n = 51$, $\bar{x} = 87.9$, $SD = 15.633$, Range = 69.00), it was determined that the variance in students' scores on the CVMT was large enough for the researcher to hypothesize realistically that a significant difference between groups could be found.

Test Administration Procedures

Because of the diversity of classes being assessed, the researcher found it impossible to follow the administration outline rigidly. Therefore, an outline of information to be covered during administration was made, and the researcher ensured that this information was covered each time the study was administered (see Appendix D for information outline). In two of the urban schools, all students were assessed at one time in different classes. Supervising teachers were given a list of instructions to read to students (refer to Appendix E for instructions to supervising teachers), and the researcher made herself available in each of the classes to answer any questions teachers or students had and to review the information from the information outline. The researcher administered the test and questionnaire at the other two urban schools and at all nonurban schools.

Data collection was carried out at the nine schools from the second week of April 1994 to the first week of May 1994. The following describes the collection of data at each of the locations.

School District A.

Farm School

The two Grade 9 health teachers at Farm School distributed and collected parental permission/information forms. All four Grade 9 classes took part in the project; however, four students were not given permission to participate. They remained within the classes and completed other work. Seven students did not complete the project in the 80-minute time period, and two responses were spoiled. Therefore, 69 student responses were analyzed (32 female, 37 male). Due to scheduling difficulties, the two classes who participated in the project in the morning had only 40 minutes, and therefore arrangements were made for them to complete it in the afternoon during their math class. The researcher was able to supervise these students only during their morning class. In order to maintain confidentiality of the questionnaires and tests, students were asked to complete only the first page of the questionnaire in the morning. The supervising teacher copied their identification numbers next to their names and gave this information to the math teacher. The researcher kept all tests and questionnaires and supervised their distribution at the beginning of the math class, at which time the sheet stating identification numbers and students' names was destroyed. The two classes of students who wrote in the afternoon were given a full 80 minutes to complete the test and questionnaire, and the researcher was able to supervise the entire session. One of the classes was made up of students who took part in the school's modified program, which consists of modified language arts and math classes. These students' responses were included in the analysis. Overall, the large majority of students appeared to the researcher to be motivated to perform well on the assessment.

Rodeo School

Students at Rodeo School completed the project during 80 minutes of their regularly scheduled morning classes. The school's principal handled the distribution and collection of parental permission/information forms. Two students were not allowed to participate, and they remained in the classroom and completed other work. Two students, whom one of the supervising teachers described as "Special Education" students (see footnote 1), completed the project with the help of an aide outside the classroom; these responses were not completed within the 80 minutes and therefore were not included in the analysis. The researcher was able to help supervise the administration. Twenty-seven student responses from Rodeo School were analyzed (15 female, 12 male). All of the students appeared to the researcher to apply themselves while completing the project.

School District B.

Dairy School

Data was collected at Dairy School in the morning during 80 minutes of the students' regular class time. The health teacher and principal distributed parental permission/information forms, and no students were reportedly refused permission to participate. The researcher supervised the administration of the project and all students appeared interested in the project and motivated to perform well on it. All 33 student responses were analyzed (14 female, 19 male).

Diamond School

Students completed the project at Diamond School in the afternoon during 80 minutes of regular class time. The health teacher handled the distribution and collection of parental permission/information forms; all students were reportedly able to take part. The researcher was able to administer and supervise the students who participated. The students appeared to work diligently while completing the assessment. All 9 student responses were analyzed (8 female, 1 male).

Valley School

Students at Valley School completed the project during their last 80 minutes of regular class time. The Grade 9 health teacher had distributed parental permission/information forms, and all students were reportedly able to take part. One student had to leave early, and two other students did not complete the project in the allotted time. The majority of the students who were in the school's IOP program were reportedly at their work-experience placements and therefore did not take part in data collection. Students appeared to the researcher, who supervised the administration, to be motivated, because they worked thoroughly until they completed the project. Sixteen student responses were analyzed (9 female, 7 male).

School District C.

West School

Data collection was carried out over two days at West School, and a total of 95 students participated. At the principal's suggestion, no permission forms were sent to parents; instead, a message was placed in the school's newsletter which included a statement asking parents to contact the principal should they not want their child to be included in the study. No students were denied permission to participate. The researcher was able to administer and supervise data collection during students' regularly scheduled classes. Only one of the four classes tested received a full 80 minutes to complete the test and questionnaire. This class also had not received specific instruction in the school district's equivalent Life Careers unit at the time of administration. The other classes received only 50 minutes, and therefore 15 students returned incomplete tests. Those who received only 50 minutes were encouraged to concentrate on answering all of the CVMT and to respond to the questionnaire following completion of the test, which they appeared to do. The majority of the students appeared to apply themselves to the task. Eight responses were not included in the analysis due to spoiled questionnaires. A total of 72 responses were included in the analysis (43 female, 29 male). An examination of the means of the two groups (those given 80 minutes and those given 50 minutes) indicates no significant difference in students' scores ($p > .05$, two-tailed), and therefore all 72 responses were included in the data analysis.

East School

Data was collected at East School during the afternoon class time. Arrangements were made to have all three Grade 9 classes complete the project at one time in separate classrooms, and therefore students' teachers administered the project using the administration instructions in Appendix E. The researcher made herself available to each class to answer student questions, review the information from the administration outline, and help teachers supervise. The vice-principal handled all parental permission arrangements, and no students reportedly returned forms denying them permission to take part. In one of the classes that the researcher helped to supervise, students complained about the length of the CVMT; however, none of the other supervising teachers gave any indication that students had difficulty with the project. In total, six students returned incomplete tests or questionnaires. Sixty student responses were analyzed (26 female, 34 male).

School District D.

South School

Data collection at South School was conducted over two days and two class periods (each consisting of 40 minutes) with one of the Grade 9 classes. The students' health teacher collected parental permission forms. Of the 29 students in the class, one of the students was not allowed to take part in the project, one student was absent on the second day of testing, and one student failed to answer the last 20 questions on the CVMT; therefore, 26 student responses were analyzed (11 female, 15 male). In order to return tests and questionnaires to each student and maintain confidentiality between the two testing dates, students wrote their own identification numbers on their class notes in order to be able to identify their material on the second day of data collection. The researcher also made a seating plan of the identification numbers and indicated the gender of each of the participants. On the second day of data collection, all students who were present recalled their ID numbers, and the packages were redistributed according to the seating plan. Students appeared to work very diligently on both occasions.

North School

Students at North School completed the project during their morning class time. Parental permission forms were sent out and received by the school's office staff. Initially, the office reported on the day of testing that five students could not take part; however, soon several students said that they could not complete the assessment. All three classes of Grade 9 students wrote at the same time in their homeroom classes, and therefore teachers administered the project using the administration instructions in Appendix E. The researcher made herself available to introduce the study, review the information from the administration outline, and answer students' questions. It appeared to the researcher that many of the students were negative towards the study, and they may have put in minimal effort. Many finished after 30 minutes. Forty-six student responses were included in the analysis (20 female, 26 male), seven students returned spoiled responses, and five students handed in either incomplete tests or questionnaires.

Reports Back to Participating Schools

A follow-up note of thanks was sent to all teachers and principals involved in the study. Teachers and principals were asked to express further appreciation on behalf of the researcher to the Grade 9 students who participated in the research project. Specific notes of thanks were sent to the students at three of the rural schools where the researcher had the opportunity to spend time speaking to the classes following the assessment. Results of the study were sent to each of the participating school boards, and letters were sent to participating school principals and teachers, notifying them that the results were available.

NOTE: In all schools it was noted by the researcher that many students had difficulty completing student questionnaire question 11: "EXPLAIN ALL THE ACTIVITIES YOU HAVE DONE IN Grade 9 HEALTH CLASS AS PART OF THE LIFE CAREERS UNIT." The researcher observed that on several occasions the supervising teacher would speak to individual students or to the entire class, listing possible answers to this question. The researcher was also asked by students what type of information was required. It appeared to the researcher that students would then copy down the responses. In addition, students in North School had not yet begun the Life Careers unit and had difficulty providing responses to this question. A review of students' responses to question 11 indicated that 131 students—37% of the sample—did not provide an answer, responded with "Nothing," stated that they had not yet begun the unit, or said that they did not remember in which activities they had participated during instruction of the unit. Forty nine students, or 14% of the respondents, provided unrelated comments, or their answers were so vague that it was difficult to define their responses as activities relating directly to the Life Careers unit. Given that 51% of the students failed to answer question 11, and given the other mitigating factors, student questionnaire question 11 was not analyzed for the purposes of this study.

The Instruments

Career Maturity

The study of students' levels of occupational knowledge is grounded in the concept of career maturity. The importance of accurate occupational information would appear to be a prerequisite to any level of career maturity (Westbrook & Mastie, 1974). Career-development tests that address career maturity measure one or more of the following domains: cognitive, affective, and psychomotor

(Westbrook, 1974). Westbrook et al. (1985) assume that "the construct of career maturity includes different elements, traits, aspects, or factors. . . . All aspects of career maturity are related to the ability and/or process of making appropriate career choices" (p. 340). This opinion concurs with that of Super (1990), who writes: "No single measure can be called *maturity*; any test or inventory score is at best an assessment of one or more aspects of a complex whole" (p. 213). The area of occupational information is an important component of vocational or career maturity and is part of the developmental model (Super, 1974) as well as the structural model (Crites, 1974) of career/vocational maturity.

The Cognitive Vocational Maturity Test

The Cognitive Vocational Maturity Test (CVMT) (refer to Appendix A) was chosen to assess Grade 9 students' levels of occupational knowledge for several reasons. First, it is the only instrument located by the researcher that focuses entirely and specifically on the level of occupational knowledge. The popular Career Maturity Inventory (CMI) (Crites, 1973), Career Development Inventory (CDI) (Thompson & Lindeman, 1981), and Assessment of Career Development (ACD) (American College Testing Program, 1974) all contain items that measure occupational knowledge and related information. However, they also attempt to provide measures of the larger construct of career/vocational maturity which is beyond the focus of this study. The portions of these tests that addressed the areas of interest to this study were not as comprehensive as the 120 items of the CVMT. The cost of using these instruments (for example the CDI requires computer scoring) far exceeded the cost of the CVMT. The CVMT had also been used in another study to measure the construct of "cognitive vocational complexity" (McDonald & Jessell, 1992).

Betz (1988) writes that although the CVMT was never published, portions of its scales were used in such instruments as the Assessment of Career Development and the Career Skills Assessment Program. The instrument has also been referred to as an attempt to define variables operationally in the Vocational Choice Competencies section of the Crites Model (Crites, 1974; Betz, 1988). The CVMT may be used for three possible purposes. First, it can be used as a screening device with students to help determine their readiness to make future "educational-vocational decisions." Second, the CVMT can be used as a diagnostic device to determine students' weaknesses in vocational knowledge. And third, it can be used for evaluation of the attainment of objectives of "career education and development programs" (Westbrook & Mastie, 1974, pp. 49-50).

Westbrook and Parry-Hill (1973), authors of the CVMT, state that the construct of vocational maturity includes behaviors in both the cognitive and affective domains. They cite research (Westbrook, Parry-Hill, & Woodbury, 1971; Gribbons & Lohnes, 1968) that determines that cognitive processes account for a substantial portion of the variance in vocational maturity scores (Westbrook & Parry-Hill, p. 1). In reference to the CVMT, "cognitive vocational maturity was defined as consisting of 15 areas of career knowledge and abilities which must be used in the process of making appropriate vocational choices." Therefore, they devised an instrument that purports to provide measures of six variables judged to be most relevant to career-exploration programs and "important for successful career development" related to the cognitive domain (p. 18). The six areas covered in the CVMT are:

1) Fields of Work - knowledge of the occupations that are available in various fields of work. (20 questions)
2) Job Selection - the ability to choose the most realistic occupation for a hypothetical student who is described in terms of his abilities, interests, values, etc. (15 questions)
3) Work Conditions - knowledge of work schedules, income level, physical conditions, job locations, etc. (20 questions)
4) Education Required - knowledge of the amount of education generally required for a wide range of occupations. (20 questions)
5) Attributes Required - knowledge of the abilities, interests, and values generally required for various occupations. (20 questions)
6) Duties - knowledge of the principal duties performed in various occupations. (25 questions) (pp. 2-3)

According to Westbrook and Parry-Hill (1973), the test "was constructed to measure knowledge and abilities dealing with the characteristics and requirements of a wide range of occupations" (p. 2). As well, "the ability to select the most realistic occupation for a hypothetical individual who is described in terms of abilities, interests, and values is also included" (p. 21). Based on the content analysis of six career-development tests, Westbrook (1974) concludes that the CVMT covers material in two of the six areas of the cognitive domain. This includes information in the areas of (a) occupational information: characteristics and requirements of occupations, job duties and responsibilities, work conditions associated with occupations, and tools and occupations; and (b) job selection: Students must identify appropriate jobs for given individuals. Betz (1988) states that factor analytical research is necessary to confirm both the "number and nature" of the six separate dimensions of the CVMT subscales (p. 101).

Westbrook and Parry-Hill (1973) state that Roe's 1956 occupational classification was used to ensure representative coverage of occupational categories, and the 1965 *Dictionary of Occupational Titles* and the 1968-1969 *Occupational Outlook Handbook* served as sources of information concerning the characteristics and requirements of occupations. Reading-level analysis reported by the authors indicates that the median grade reading levels required for the various area subtests range from Grade 1.4 for Job Selection to Grade 2.2 for Education Required. "Apparently, reading ability, beyond a minimal level, is not of primary importance in responding to the test items. Thus, the test measures the examinee's knowledge of the requirements and characteristics of occupations and not sheer reading comprehension skills" (p. 21). However, the length of the test may have been a factor for some students in this study, particularly because the test was given in the majority of cases in one 50- to 80-minute period instead of two 45-minute classes as recommended by the administration manual.

Reliability of the CVMT

Information provided by Westbrook and Parry-Hill (1973) states that the CVMT was standardized on 7,367 students in Grades 6 through 9 in 40 North Carolina public school systems of various enrollments, socioeconomic levels, and geographic regions. Reliability of the CVMT was assessed using the Kuder-Richardson formula (refer to Table 3-3). "The relatively high coefficients for the single-grade groups indicate the highly homogeneous nature of the six area subtests comprising the CVMT. The standard errors of measurement suggest that a high degree of confidence may be placed in the obtained scores on most of the area subtests" (p. 21).

Table 3-3

KR-20 Reliability Coefficients and Standard Errors of Measurement for Grade 9 Students Who Participated in the Standardization Sample (n=926)[1]

Subtest name	$\bar{x}$	SD	KR-20	S.E.M.
Fields of work	15.88	3.40	.79	1.58
Job selection	9.73	2.87	.67	1.65
Work conditions	16.90	3.30	.81	1.44
Education required	14.91	3.62	.78	1.71
Attributes required	15.55	4.15	.86	1.53
Duties	18.40	5.52	.89	1.86

[1] Adapted from Westbrook and Parry-Hill (1973, p. 13).

In reference to Table 3-3, the Job Selection subtest has the lowest number of items at 15, and this may be one possible explanation for its lower reliability estimate. Of the 24 reliability estimates reported across all four grades (6 through 9), only six are below .80. Split-half reliabilities were reported to be calculated for a sample of the students in the standardization sample, and this information was requested from Mr. Westbrook in January 1994; however, it was not received.

Validity of the CVMT

Information providing evidence of the validity of the CVMT is supplied by Westbrook and Parry-Hill (1973). In reference to content-related validity, in addition to the test authors' attempts to ensure representative coverage of occupational information (refer to the Cognitive Vocational Maturity Test), Westbrook (1982) provides a review of the cognitive domain instructional objectives that the CVMT is said to cover.

Criterion-related validity of the CVMT was gathered using two procedures. Westbrook and Parry-Hill (1973) attempted to determine whether test scores could serve as indicators of a student's "ability to make appropriate vocational choices"

(p. 16). Two hundred and forty-nine ninth-grade students completed the CVMT, the Kuder-Preference Record (Form C), the California Test of Mental Maturity, and Trow's Vocational Choice Inventory. The authors reported that students who were classified as adjusted (whose vocational choice was in their field of interest and on the appropriate aptitude level; 26 students) attained significantly higher means on all area subtests and on the total test than did students who were classified as maladjusted (whose choices of occupations were not appropriate for their field of interest or their aptitude level; 117 students). Therefore, students whose vocational choices were both in their field of interest and of an appropriate aptitude level scored higher on the CVMT. Using this same sample, the authors compared those students' scores whose career choices and interest matched (n = 42) with those with incongruent career choices (n = 207). The mean CVMT scores of the congruent group were significantly higher on all subtests and on the total test than the mean scores of the incongruent group.

> Pupils with greater knowledge of the characteristics and requirements of occupations made more appropriate vocational choices than did pupils with less knowledge. These results do not provide conclusive evidence about the validity of the CVMT, but they do suggest that the test measures some aspect of vocational maturity which is associated with an individual's ability to make appropriate choices. (p. 21)

In reference to construct validity, Westbrook and Parry-Hill (1973) also report that each of the area subtests of the CVMT correlated positively with the California Test of Mental Maturity (the lowest correlation reported was .53 for Work Conditions; the highest correlation reported was .70 with Duties and Total Test Score) for a sample of 249 students in Grades 7 through 9. The CVMT mean scores reportedly increased systematically across Grades 6 through 9 as expected—assuming the claim that cognitive vocational maturity behaviors are developmental. Based on the results of students in Grades 7, 8, and 9, who were part of the standardization sample, intercorrelations of the six area subtests and their correlation with the total score indicate that the pattern and size of the correlations are similar, and with the exception of Job Selection and Work Conditions at the Grade 9 level, the intercorrelations are in the .60s and .70s. Subtest correlations with the test total range from .78 for Job Selection (Grade 9) to .92 for Duties (Grades 7, 8). At the Grade 9 level, intercorrelations of the subtests with the total test score range from .78 to .91.

> A high correlation with total score indicates that the tests contribute to the measurement of a general factor while the lower subtest intercorrelations imply that the tests measure different aspects of the criterion. Data collected from the standardization sample indicate that the subtests of the CVMT are in accord with this expectation. (p. 22)

Westbrook (1976) later found that the CVMT subtests were strongly related to scores on the CMI Attitude Scale and the CDI Information and Decision Making Scale and unrelated to the CDI Attitude Scale. Betz (1988) states that these findings suggest that the CVMT possesses "convergent validity relative to other cognitive career maturity measures" but information supporting criterion-related validity, in her opinion, is inadequate (p. 100). She encourages the use of "IQ or academic achievement covariates in the study of the relationships of career maturity measures to other measures" (p. 101).

Based on the above information, the researcher deemed the CVMT to be a suitable instrument for the purposes of this study. However, due to the age of the instrument and the use of American occupational and educational terms, several revisions were made.

Revisions to the CVMT

The instrument was revised slightly for the purposes of this study. On items 21 through 35 (refer to Appendix A), names and gender-specific pronouns supplied by the authors were replaced by gender-neutral names to eliminate the chances that sexual stereotyping would influence students' responses to the items. For all remaining items, sex-typed occupation titles were either replaced by a neutral title (e.g. fireman—firefighter) or both genders were represented (e.g. actress—actor/actress). Canadian terms and titles replaced those that were more typically American. For example, "university," where appropriate, replaced "college"; and such American job titles as "certified public accountant" were replaced by the Canadian job title of "chartered accountant."

Permission to Use the CVMT

In January 1994 a letter was sent to Bert Westbrook, at the School of Education, North Carolina State University, Raleigh, North Carolina, co-author of the CVMT, stating that the test was to be used in the study. Dr. Westbrook was asked to inform the researcher if permission was required before the test was used. As well, he was asked to confirm that the 120-item test was the one to use of discrepant reports found in *Assessing Career Development* (Krumboltz & Hamel, 1982, pp. 278-279) stating that the test consisted of 238 items. Information was requested on the split-half reliabilities of the CVMT, which according to the test manual were being calculated at the time of printing (Westbrook & Parry-Hill, 1973). Dr. Westbrook was informed as to the changes being made to reduce the chances of sexual stereotyping, and a copy of the revised instrument and research-study results were offered. A reply was not received from Dr. Westbrook.

Student Questionnaire

Based on the review of the literature (refer to Chapter 2), a number of variables were deemed to have a possible influence on students' levels of occupational knowledge. Therefore, a questionnaire was constructed by the researcher in an attempt to solicit information from the students that addressed these variables (refer to Appendix B and Table 3-4). The questionnaire was completed by all students who participated in the study.

Coding of the Questionnaire

Refer to Appendix B for a copy of the questionnaire and the coding numbers used.

Questions 1 through 7. All questions were completed by students, and each response was assigned the corresponding number code. On question 3 if no response was given (apparent on some questionnaires from students in School Districts C and D), it was assumed that the answer was "No" and coded as such.

Questions 8, 9, 10, and 14. All occupations were coded using the *Standard Occupational Classification - 1980 Edition* (Statistics Canada, 1981). They were then placed into one of 16 categories based on the *Revisions of the Pineo-Porter-McRoberts Socioeconomic Classification of Occupations for the 1981 Census* (Pineo, 1985). In addition, the following number codes were used for the alternate student responses listed:

30	Homemaker/mother/father
17	No response given
18	Do not know; not sure; still thinking; have not decided
19	Unable to classify student's response
20	Student; unemployed; no mother/father; disabled; unemployed

Table 3-4

Student Questionnaire Items and Related Variable Information Question Addresses

(Refer also to Appendix B for a copy of the questionnaire.)

Variable question addresses	Question number and content
Gender	1. Are you male/female?
Location	2. Do you live in a city/town/village/rural area? 3. Do you live on a farm? yes/no
Estimate of student's academic achievement	4/5/6/7. In Grade 9 your report card marks in the following courses (language arts, social studies, math, science) have been below 40%/40%-60%/60%-80%/80% and above.
Occupational knowledge	8. List all the jobs/occupations you feel you know a lot about. For example, list those jobs/occupations for which you know the training requirements, education requirements, duties, work conditions.
Occupation level of mother/guardian	9. a) What kind of work does your mother normally do? b) What does the job involve? (Describe.) c) What kind of business/organization does she work for? What does her employer do or make?
Occupation level of father/guardian	10. a) What kind of work does your father normally do? What is his job title? b) What does the job involve? (Describe.) c) What kind of business/organization does he work for? What does his employer do or make?
Socioeconomic status	12. Check the category that best describes your family: My family makes less money than most other Grade 9 students' families in Alberta/My family makes about the same amount of money as most other Grade 9 students' families in Alberta/My family makes probably more money than most other Grade 9 students' families in Alberta. 13. Your total family income per year, based on the income of the adults who live in your home, would be lower income/lower middle income/middle income/upper middle income/high income.*
Occupational aspiration	14. What job(s) or occupation(s) would you like to have when you are an adult?
Student's knowledge of training/education requirements of occupational aspirations	15. What education or training will you have to complete in order to be qualified to go into the job(s)/occupation(s) you stated in question 14? (Please describe.) *(table continues)*

Variable question addresses	Question number and content
Educational expectations	16. How much education do you expect to get? Some high school/graduate from high school/some vocational school/complete vocational school/some university/graduate from university*
Feelings of preparedness	17. How prepared do you feel you are to make decisions and plan for a future job/occupation? (Please explain.)
* Question has been edited; refer to Appendix B for complete question.	

The researcher coded all 358 questionnaires and attempted to consult someone working in the occupation when she experienced difficulty coding any particular job. A random sample of 51 questionnaires were recoded by three raters who worked independently.

The raters and researchers formulated and agreed to the following coding guidelines:

1. *If the student stated that the parent was currently unemployed and had previously held a position, the previous position was classified.*
2. *If two or more occupations were provided by the students to describe their parents' work, the job receiving the higher rating was used.*
3. *For those students who stated that a parent was a homemaker and then listed other part-time jobs that he/she also held, whenever possible, the part-time job was coded.*
4. *For those students who described their parents as farmers and holding another job, unless it was clear that the other occupation was a full-time position, the premise was made that the parent would likely farm full time if possible, and therefore rated Category 6: Farmers.*
5. *Vague occupation descriptions, such as "banking" and "construction," were rated 19 (Cannot Classify) unless more description was provided in the answer or with the responses to other questions on the questionnaire.*
6. *On question 14, if the student listed more than two occupations, the first two that could be coded were used.*

7. All manager occupations or business-owner occupations that could not be further classified, given the information provided by the students, were given the code of 5130 and rated Category 10: Supervisor.

8. The general occupation of scientist was classified as code 2111: Chemist and rated Category 15: Employed Professional.

9. When students did not specify which field of engineering was being referred to, the code for Construction Engineer was used and rated Category 15: Employed Professionals.

10. Fish and Wildlife Officer was given the code for Park Ranger and rated Category 7: Skilled Crafts and Trades.

An error was found on the coding of the occupation "secretary" and was corrected. Although the raters disagreed on the job titles and codes given to some of the student descriptions by the researcher, the assignment of the final category of each of the jobs by the researcher was agreed upon by all three of the raters.

Discussion of coding questions 8, 9, 10, and 14. Possible inconsistencies in student responses were noted when coding students' answers to questions 8, 9, 10, and 14. For example, some students stated that a parent was an accountant and coded as such (Category 15) even though, given other information on the questionnaire, the parent was more likely to be a bookkeeper (Category 8). This inconsistency in student responses was apparent on Questionnaire #410. The student stated on question 8 that she knew how to be a floral designer, which was rated as Category 13. On question 14 the student stated that she would like to be a florist, which was rated as Category 10. It may be questioned whether the student knew the difference between the two occupations. Such inconsistencies may have occurred on other student responses as well.

Difficulties were noted with coding the occupation of business person/owner. If students named the actual trade area or service the parent offered, or if further information was provided, the job was coded as the trade or at the category of Foreman (Category 9) or Supervisor (Category 10). However, when students wrote "businessman" or "manager" with few details, it was difficult to code the occupation other than Category 10: Supervisors or Category 11: Middle Management. These ratings may have exceeded the actual occupation code that would have been used if more description had been given.

The occupations related to computers were often difficult to classify because there are few listed in the 1980 Classification. Computer Consultant was rated Category 13: Semi-Professionals.

Discussion of coding questions 12, 13, 15, 16, and 17. When more than one response was given on questions 12, 13, or 16, the response receiving the higher number was coded. An independent graduate student, using the same classification rules as the researcher, recoded questions 15, 16, and 17 on a random sample of 50 questionnaires. Some difficulties were noted in the coding of questions 15 and 17; therefore, the categories were revised and recoded independently by the examiner and another rater. Discrepancies in coding were resolved using the consensus model.

Data Analysis

The current study is based on an ex post facto or causal-comparative design (Ary, Cheser Jacobs, & Razavieh, 1990). Students' location, gender, level of academic achievement, and socioeconomic status level had been determined prior to this study taking place; moreover, students could not be randomly assigned to groups. The influence of these variables on students' level of occupational knowledge, as measured by their scores on the CVMT, is discussed in the following chapters.

All student answers to the CVMT were scored electronically using the optical scoring system at the University of Alberta. Data was obtained from the students' results on the CVMT and the results of the coding of the students' questionnaires. Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) (1993) computer program. Data from students' scores on the CVMT and the student questionnaire were analyzed using Pearson Product Moment correlations, *t* tests and the Analysis of Variance (ANOVA) technique (refer to Chapter 4 for the results of the analyses). Each of the student responses to the questionnaire was considered in the analysis, with the exclusion of item 11, which states: "EXPLAIN ALL THE ACTIVITIES YOU HAVE DONE IN GRADE 9 HEALTH CLASS AS PART OF THE LIFE CAREERS UNIT" (refer to Note, p. 55, for an explanation).

Limitations and Delimitations of the Study

Several factors limit the generalizability of the findings of this research study. First, the participating schools, whose students and teachers make up the research sample, were not randomly chosen. The school districts that were approached appeared to offer the researcher a varied background of subjects and convenience of approval. Students from the three separate locations, however, may not have been representative of all students in the province. Those students who were not given parental permission to participate, or who were absent on the day of administration, may have characteristics that could have altered the findings of this project should they have taken part. These findings could not be generalized to all students within the province without further investigation. Moreover, this study attempts to determine if there are any significant differences between the levels of occupational knowledge of nonurban and urban Grade 9 students at three different locations within Alberta, and thus these results cannot be generalized to mean differences in the larger construct of career maturity.

Second, the results of this study are influenced by the psychometric properties of the instrument (CVMT) and other confounding factors which can affect the testing situation. For example, there were discrepancies in testing times at the various schools, differences in the time of day students participated in the study, and variations in the administration and supervision of the project. These factors may decrease the reliability of students' CVMT scores, responses on the questionnaire, and therefore the findings of this study (refer to **Data Collection**). Moreover, some students' inability to complete the test or the questionnaire within the time period, or in a manner that made it suitable for analysis, could have resulted in some data being lost.

Third, although there was an attempt to obtain as much information from the health teachers as possible, the interviews may not have generated all the information required in order to assume that students had completed similar activities and that comparisons between schools could be made. In addition, since not all of the health teachers were interviewed, valuable information that could be used to help explain students' performance was not available.

There is no way of assuring the reliability of the student responses to the student questionnaire or the coding of the questionnaire. Some students may have misunderstood questions and provided answers they may not have, should they have fully understood the intention of the question. Some students failed to provide any response to one or more of the questions, resulting in the unavailability of information that was required to compare urban and nonurban samples. The demographic data from the questionnaire is based solely on students' self-report, which was anonymous; therefore, it is impossible to confirm that the information was indeed accurate. An interview with students, their parents, and possibly their teachers to confirm the information provided may have increased the reliability and validity of the data and findings derived from the questionnaire. As well, the questionnaire does not cover all possible variables that may influence students' levels of occupational knowledge. For example, students were not asked to provide information on previous work experience on the questionnaire; this variable may have had an influence on students' scores on the CVMT and possibly should have been controlled for in the analysis of students' scores.

In addition, students' responses on both the student questionnaire and CVMT were heavily dependent on such factors as the students' motivation to complete the tasks, their levels of vocabulary, reading rate, and writing skills. Variations in students with regard to these variables, particularly in reference to the questionnaire, may have resulted in erroneous representation of student information and then classification of this data. In coding the student questionnaire, the researcher was forced to categorize student responses, which in many cases were simply job titles. Student responses in this form may or may not be a true representation of students' understanding of these occupations (for example, refer to **Discussion of Coding Questions 8, 9, 10, and 14**).

Finally, an underlying assumption on which this study was based is apparent in the coding of jobs and occupations on the student questionnaire. A classification system is used to categorize occupations. This classification system assumes that certain occupations have higher status and value within our society than others. The value system that is represented by the classifications may or may not be accurate, and may or may not be held by the students in this study or the communities they represent. However, it is the contention of the researcher, after considerable experience in working with adolescents, that such a classification system is held by a large majority of adolescents and their families, and it is a valid premise on which to base this study.

Chapter Summary

The method and procedures utilized throughout this study are presented in the previous chapter. Outlined are 12 specific research questions which guide the study and focus on determining if there is a significant difference in urban and nonurban students' levels of occupational knowledge. Described are school locations, student populations, and programs, as well as a summary of student activities carried out during the instruction of the Life Careers unit. An account of the data-collection and data-analysis procedures is presented. Two instruments were used to gather data for the purposes of the study. This chapter includes a description of the Cognitive Vocational Maturity Test (CVMT) and information regarding its validity and reliability. In addition, a description of the student questionnaire and coding procedures used to analyze the resulting information is provided. Also included is a discussion of the limitations and delimitations of this research study.

CHAPTER 4

RESULTS

> *When asked to respond to the statement: "I don't really want to plan for the future. What will happen to me in the next five years just doesn't seem real to me," only 20.6% strongly agreed or agreed. According to this finding, 4 in 5 of the girls surveyed think about and are planning for the future. "Careers" ranked 5th out of 34 interests/concerns listed in the participant questionnaire. (Canadian Teachers' Federation, 1990, p. 12)*

The research data for this study consists of students' scores on the Cognitive Vocational Maturity Test (CVMT) and their responses to the questionnaire (refer to Chapter 3 for descriptions of the instruments). A total of 358 Grade 9 student responses were analyzed, the sample consisting of 204 urban school students and 154 students from nonurban schools. All items from the student questionnaire were considered in the analysis with the exception of item 11 (refer to Chapter 3 for explanation). The statistical analyses were conducted using the Statistical Package for the Social Sciences (1993) (SPSS) computer program. Pearson Product Moment correlations, *t* tests, and the Analysis of Variance Technique (ANOVA) were employed to answer the research questions as stated in Chapter 3. The results of the statistical analyses conducted on the research data are presented in this chapter.

Performance of the CVMT

The researcher was unable to locate any studies that provided a reliability score for the CVMT test total; therefore, this information could not be compared with the results of the current study. Westbrook and Parry-Hill (1973), using the results from their standardization sample, reported the reliability scores of the CVMT's individual subtests. These scores are reported in Table 3-3. Based on the total sample of 358 students in this study, the performance of the CVMT was as follows: $\bar{x} = 83.38$, SD = 20.59, S.E.M. = 4.28, Kuder-Richardson 20 (KR 20) Reliability .96. The CVMT consists of 120 multiple-choice items, and this length may have been one factor that contributed to the test's high reliability score of .96 (Ary, Cheser Jacobs, & Razavieh, 1990). For the purposes of its use in this study, a reliability score of .96 would appear to indicate that the CVMT measured a singular construct that was assumed to be cognitive vocational maturity or occupational knowledge.

Results of Analyses

Research Question A

> **Items on the student questionnaire addressed students' level of academic achievement, occupational knowledge, socioeconomic status, occupational aspiration, and educational expectation. What is the relationship of the measures of each of these variables to each other, and to students' scores on the CVMT?**

Pearson Product Moment correlations were calculated in order to determine the relationships among the items on the student questionnaire. The purpose of these items was to have students provide information indicating their level of academic achievement, occupational knowledge, socioeconomic status, and occupational aspiration. As discussed in Chapter 2, relationships between these variables and measures of occupational knowledge and career maturity have previously been determined. Students indicated their percentage grade range in each of their four core subjects of math, science, social studies, and language arts. Their responses were coded and totalled as a measure of the students' levels of academic achievement. Occupational knowledge was measured by two methods. Students were asked to list jobs for which they knew the work conditions, the training/education requirements, and the duties. The number of job titles that students listed was totalled. In addition, the highest level of job listed was determined. Socioeconomic status was calculated in four ways. Students' provided descriptions of their parents' jobs and the highest level of job was coded and compared. As well, students were asked to indicate their family's income status as compared to other Grade 9 students in Alberta. They also indicated their family's income range. Students' coded responses to these three items were totalled and used as another measure of their socioeconomic status. The students also were asked to provide two occupational aspirations that they hold for their future. Their responses were coded, and the job title receiving the highest classification was used in the analysis. A discussion of the coding guidelines is included in Chapter 3. A correlational analysis of these items was expected to provide evidence of possible relationships between the variables and students' scores on the CVMT. Table 4-1 presents the intercorrelations between these items and with students' scores on the CVMT.

Table 4-1

Intercorrelations Between Students' Scores on the Cognitive Vocational Maturity Test and Selected Items From the Student Questionnaire

	ACH	NOJ	HIJ	PJ	FI	FS	HIA
S	.57* (n=358)	.21* (n=358)	.34* (n=358)	.35* (n=344)	.24* (n=276)	.09 (n=334)	.32* (n=334)
ACH		.18* (n=358)	.25* (n=358)	.34* (n=344)	.19* (n=276)	.07 (n=334)	.33* (n=334)
NOJ			.69* (n=358)	.01 (n=344)	.23* (n=276)	.13* (n=334)	.05 (n=334)
HIJ				.10 (n=344)	.25* (n=276)	.04 (n=334)	.23* (n=334)
PJ					.39* (n=268)	.18* (n=323)	.30* (n=321)
FI						.61* (n=271)	.03 (n=262)
FS							-.06 (n=311)

* = $p < .05$.

S: students' scores on CVMT
ACH: reported academic achievement
NOJ: number of jobs listed
HIJ: highest level of job listed
PJ: highest level of parent job listed
FI: reported family-income range
FS: reported family-income status
HIA: highest occupational aspiration

In reference to the data presented in Table 4-1, a moderately strong relationship was noted between students' scores on the CVMT and their reported academic achievement (r = .57). Approximately 25% of the variance of students' scores on the CVMT can be attributed to their reported level of academic achievement. Significant low-moderate correlations were also noted between students' CVMT scores and three of the other variables: the level of the highest occupational category to which students stated they aspired (r = .32), the level of the highest occupational category about which students reported they were knowledgeable (r = .34), and the level of the highest occupational category held by one of their parents (r = .35). Students who scored higher on the CVMT tended to aspire to occupations that received higher category ratings. They also stated that they knew about occupations that received higher ratings, and they reported that one of their parents held a job that received a higher occupational category rating.

On the student questionnaire, students were asked to list the jobs/ occupations about which they were knowledgeable. There was a moderately strong significant correlation (r = .69) between the number of jobs that students listed and the category ratings that the jobs received, as shown in Table 4-1. Students who listed more occupations tended to list occupations from higher occupational categories.

Students' reported family-income range was moderately related to their reported family status (r = .61). Students who indicated higher family incomes were also likely to report that their families made more money than the families of other Grade 9 students did. However, the category rating of the parents' occupations had a lower correlation with reported family income (r = .39) and an even lower correlation with reported family status (r = .18). Although these correlations were statistically significant, it was expected that if these three variables were accurate indicators of students' socioeconomic status, the relationships between them would have been stronger. In response to the student questionnaire item that addressed family income status, 256 students—72% of the sample—indicated that their family made about the same amount of money as other Grade 9 students' families in Alberta (item 12). The lack of variability in students' responses to this item may have affected its performance. Moreover, as is evident in Table 4-1, family income range (r = .03) and family status (r = -.06) were near zero and had almost no relationship with students' highest occupational aspiration. This result was unexpected; it was assumed that those students who reported a higher socioeconomic status would also aspire to higher occupation levels. Thus, it may be questioned whether the student-questionnaire items used to determine socioeconomic status provide reliable information; therefore, further correlational analysis of these variables was not pursued.

Students' reported level of academic achievement had a low but significant relationship with their occupational aspirations (r = .33). Students who reported higher academic achievement, were inclined to aspire to occupations that received higher ratings. As well, a low but significant correlation was noted between students' achievement levels and students' highest reported parent occupation (r = .34). Students who reported that a parent held a job that received a higher category rating also reported higher academic achievement.

Pearson Product Moment correlations were also used to determine the relationship between students' scores on the CVMT and three other variables. First, their total score reflecting their knowledge of the education or training requirements of their occupational aspirations was determined by scoring and coding students' written explanations. This served as another measure of occupational knowledge. Second, students were asked to indicate the level of education they expected to obtain. Their responses were again coded and used as a measure of educational expectation. Third, students were asked to explain their feelings of preparedness to plan for a future job/occupation; their responses were rated and coded as an indicator of students' preparedness. Appendix B and Chapter 3 include a detailed description of the coding classifications and coding guidelines used. The relationships between these variables, as well as students' highest rated occupational aspiration, are shown in Table 4-2.

As was anticipated, some low-moderate correlations were apparent between several of the variables from the questionnaire, as evidenced in Table 4-2. Students' scores on the CVMT were significantly related to the scores measuring these three other variables: (a) students' understanding of the training needed to achieve their occupational aspirations (r = .28), (b) the amount of education students intended to acquire (r = .40), and to a lesser degree, (c) students' feelings of preparedness to make decisions and plan for a future occupation (r = .18). Students who scored higher on the CVMT were more likely to know what training or education was required to attain their occupational aspirations. These students also intended to obtain more education, and they were somewhat more likely to feel prepared to plan for their future occupations.

Table 4-2

Intercorrelations Between Students' Scores on the Cognitive Vocational Maturity Test and Student Questionnaire Items 14, 15, 16, and 17

	HIA	TT	E	P
S	.32* (n=334)	.28* (n=358)	.40* (n=355)	.18* (n=333)
HIA		.11* (n=334)	.46* (n=332)	.01 (n=309)
TT			.13* (n=355)	.26* (n=333)
E				.12* (n=330)

* = $p < .05$ level.

S: students' scores on CVMT
HIA: highest occupational aspiration
TT: total training score
E: highest level of education expected
P: preparedness to plan for a future job/occupation

It would seem from the analysis that students who aspired to higher level occupations intended to obtain more education ($r = .46$); however, they did not appear to feel more prepared to make decisions and plan for the future ($r = .01$). There was a low but significant relationship between students' scores indicating their knowledge of training/education requirements of their occupational aspirations and their feelings of preparedness to plan for a future job ($r = .26$). Those students who had a greater understanding of what training or education was required to pursue their occupational aspirations appeared to feel somewhat more prepared.

Based on the results presented in Tables 4-1 and 4-2, expected correlations between variables were evident. Academic achievement was found to be positively correlated with the measures of occupational knowledge. Moreover, students who scored higher on the CVMT, as compared to those who scored lower, tended to have higher educational expectations and were likely to feel more prepared to plan for their future job/occupation. Those students with higher occupational aspirations also indicated greater educational expectations. Students whose parents held jobs that received higher ratings tended to aspire to higher rated occupations themselves. These findings tend to replicate those of other studies which focus on the relationships between measures of career maturity and students' occupational knowledge, educational and occupational aspirations, and socioeconomic status as measured by parental occupation (refer to Chapter 2 for a review of studies). The findings, therefore, provide some evidence as to the validity of the questionnaire and the data obtained from it.

Those questionnaire items addressing students' socioeconomic status did not, however, correlate with each other and with other items, as expected. The strong relationship anticipated among three of the items measuring students' socioeconomic status was not evident; therefore, further analysis of this variable was not pursued.

Research Question B

Is there a significant difference in CVMT scores based upon the students' school location?

1. **Is there a significant difference when correcting for the effects of gender and academic achievement?**

A number of steps were undertaken in the analysis of Research Question B. An initial *t* test comparing urban and nonurban students' scores indicated that nonurban students had scored higher than urban students had on the CVMT {$t(355.32) = -2.88$, $p < .05$, two-tailed}. In order to understand this phenomenon further, a oneway Analysis of Variance was employed. Prior to this, the students were subdivided into three groups. This step was taken for several reasons. First, the students from East School had, according to the information obtained from the health teacher, received less instruction time in the unit than the students from West and South Schools had. Second, students from North School had not yet begun specific instruction in the Life Careers unit. Third, in the testing situations at North and East Schools, the researcher had perceived the students she had supervised to be less motivated to perform well on the assessment. An initial *t* test had indicated that the students attending the two schools located in lower socioeconomic (SES) areas of the city scored significantly lower on the CVMT than the students from the two schools situated in higher SES areas of the city ($p < .05$). For these reasons, the students were further subdivided into three groups. **Group 1** consisted of students attending the two urban schools that were said to reflect an area of the city with a higher socioeconomic status (n = 98). **Group 2** students were those attending the two urban schools which were reported to have "high-needs" students and were said to represent an area with a lower socioeconomic status (SES) (n = 106). **Group 3** included those students attending the five nonurban schools (n = 154). The results, shown in Table 4-3, indicate a significant difference in students' scores on the CVMT among these three groups (F = 36.19, df = 2,355, $p < .05$). CVMT scores of the three groups of students were compared using the Scheffé method of multiple comparisons between means.

Table 4-3

Oneway ANOVA Results Comparing Students' Scores on the Cognitive Vocational Maturity Test at Each of the Three School Locations

School location	n	Test $\bar{x}$	SD
Group 1	98	91.71	15.61
Group 2	106	70.69*	24.00
Group 3	154	86.80	16.54

ANOVA Results: F = 36.19, df = 2,355, * = $p < .05$.

The results presented in Table 4-3 indicate that Group 2 students' scores on the CVMT were found to be significantly different from those of Groups 1 and 3. Students who were attending the two urban schools that reflected a lower socioeconomic area of the city scored significantly lower on the CVMT than the students at the two other urban locations and the students from the nonurban schools did.

The gender of students has previously been found to influence students' scores on career maturity measures: Girls typically score higher on such instruments (see Chapter 2 for more details). Therefore, an ANOVA was used to consider the effects of school location and gender on students' scores on the CVMT (refer to Tables 4-4 and 4-5). The effect of school location was found to be 1.39 times greater than the effect of gender on students' scores (F = 33.64, df = 2,352, $p < .05$); however, the effect of gender was also found to be significant (F = 24.22, df = 1,352, $p < .05$). A significant interaction effect between school location and gender was also apparent (F = 3.22, df = 2,352, $p < .05$). It would appear that students' scores on the CVMT were influenced by their gender, as well as by the location of the school they attended (refer to Figure 4-1).

As is indicated in Table 4-5 and Figure 4-1, Grade 9 girls scored higher on the CVMT and reported higher academic grades than their male counterparts did. Girls from Group 1, those girls attending schools in higher socioeconomic areas of the city, received the highest mean scores on the CVMT. Boys from Group 2 schools, those that were situated in lower SES areas of the city, received the lowest mean scores on the CVMT. Both males and females from Group 2 schools received the lowest CVMT scores and reported the lowest academic achievement levels.

In order to determine whether a significant difference existed between students' CVMT scores once the effects of students' academic achievement were controlled, an ANOVA was again used. On items 4, 5, 6, and 7 of the questionnaire, students had indicated their grade ranges in percentages for each of the four core subjects of math, language arts, social studies, and science. These responses were coded, totalled, and employed as a covariate. Appendix B outlines the codes used. This procedure was employed to help ensure that it was not students' achievement levels which were creating the differences in the students' CVMT scores at the three locations. This step was important because Crites (1974) reports that the CVMT has a "moderate-to-high" correlation with scholastic aptitude (p. 314). The effect of reported school achievement on students' CVMT scores was 6.14 times greater than that of school location and gender. However, after removing the effects of reported academic achievement, school location was found to have a significant effect on students' CVMT scores (F = 19.97, df = 2,351, $p < .05$), and the gender of students also had a significant influence (F = 18.82, df = 1,351, $p < .05$) (refer to Table 4-4).

The results of the ANOVA indicated again a significant interaction effect between school type and gender when students' reported academic achievement was employed as a covariate (F = 4.33, df = 2,351, $p < .05$) (refer to Figure 4-1). It would appear that students' scores on the CVMT were not only the result of their reported academic achievement levels, but were also influenced by their gender and the location of the school they attended.

Table 4-4

Results of ANOVA Comparing Students' Scores on the Cognitive Vocational Maturity Test Based on Students' School Location, Gender, and Reported Academic Achievement

Variables	df	F
Score x school location	2,352	33.64*
Score x gender	1,352	24.22*
Covariate: Achievement		
Score x school location	2,351	19.97*
Score x gender	1,351	18.82*

* = $p < .05$.

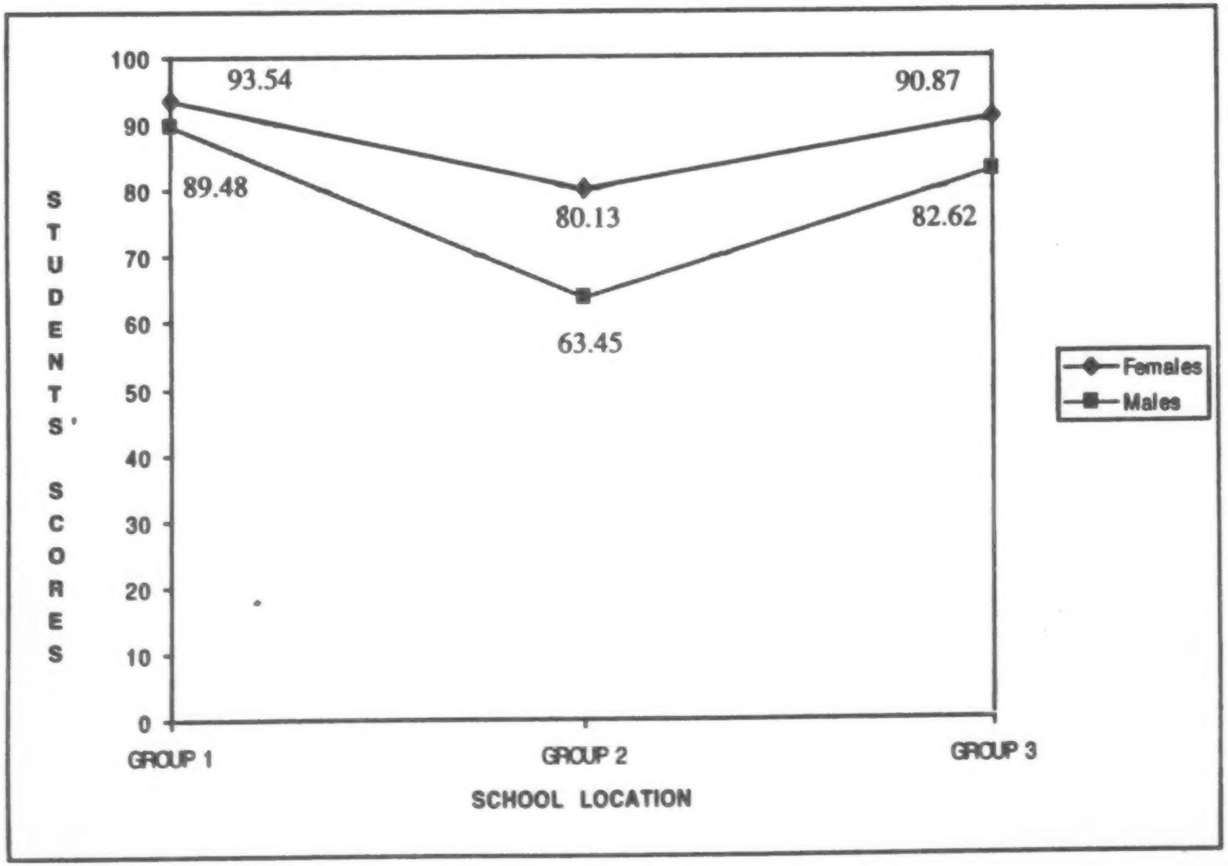
Table 4-5

Summary of Students' Mean Cognitive Vocational Maturity Test Scores and Reported Levels of Academic Achievement by School Location and Gender

School location	Gender	n	Test $\bar{x}$	SD	Reported academic achievement $\bar{x}$	SD
Group 1	Males	44	89.48	18.61	13.05	2.48
	Females	54	93.54	12.55	13.63	1.92
Group 2	Males	60	63.45	24.37	10.90	2.81
	Females	46	80.13	20.10	11.54	3.18
Group 3	Males	76	82.62	19.02	11.83	2.89
	Females	78	90.87	12.52	12.55	2.42

Figure 4-1

CVMT Scores of Students as a Function of School Location and Gender Showing a Significant Two-Way Interaction



In response to Research Question B, there were significant differences in students' CVMT scores at the three locations. Students who attended the two urban schools that had high-needs students scored significantly lower on the CVMT than the students from the two other urban schools and those students attending the nonurban schools did. The location of the schools that students attended tended to have a stronger effect on students' CVMT scores than their gender did; however, both variables were found to be significant. A significant interaction effect occurred between students' CVMT scores, their school location, and their gender. After controlling for the influence of students' reported levels of academic achievement, a variable that accounted for 25% of the variance in students' scores on the CVMT, the location of students' schools continued to have a significant effect on their scores.

Note: The socioeconomic status of the students at the different locations and its effect on students' scores were measured in several ways. Research questions C, D, E, and F were conducted in order to determine if there were significant differences in this variable as a result of location, as well as to determine the effect of this variable on students' CVMT scores.

Research Question C

Based on their school location, does students' socioeconomic status, as measured by their reports of their parents' highest level of occupation, significantly affect students' scores on the CVMT?

In response to questionnaire items 9 and 10, students provided descriptions of their parents' jobs. These items asked for the following information: "What kind of work does your mother/father normally do? What is his/her job title? What does the job involve? (Describe.) What kind of business/organization does she/he work for? What does her/his employer do or make?" Of the responses that could be categorized, the highest rated parent occupation was determined using the *Revisions of the Pine-Porter-McRoberts Socioeconomic Classification of Occupations for the 1981 Census.* Information pertaining to coding guidelines is presented in Chapter 3 and Appendix B.

The results of an ANOVA, as shown in Table 4-6, indicate that students' reported parental occupation level influenced significantly their scores on the CVMT at the three school locations ($F = 3.29$, $df = 15{,}326$, $p < .05$). Given this finding, a oneway ANOVA was carried out which indicated that at the three school locations, there were significant differences in the parents' highest rated occupations (F = 52.02, df = 2,341, $p < .05$). The mean occupation ratings of the three groups were compared using the Scheffé method of multiple comparisons between means. Students at higher SES school locations reported that at least one of their parents held an occupation that was rated significantly higher than those of parents of nonurban students and those from schools in lower urban SES areas. Group 1 students reported that at least one of their parents held the highest level of occupations ($\bar{x} = 12.20$); the average occupations were in the category of Technicians. Group 2 students reported the lowest level of parent occupations ($\bar{x} = 7.17$); the highest average occupational levels were in the category of Skilled Crafts and Trades. Nonurban students, Group 3, reported parent occupations that on average were classified in the category of Skilled Clerical Sales and Service ($\bar{x} = 8.15$).

Table 4-6

Results of ANOVA Comparing Students' Scores on the Cognitive Vocational Maturity Test and Scores on Questionnaire Items 9/10, 12, and 13, Based on Their School Location

Variable	School location	n	$\bar{x}$	SD	df	F
Score	Group 1	98	91.71	15.61	2,355	36.19*
	Group 2	106	70.69	24.00		
	Group 3	154	86.80	16.54		
Highest parent job	Group 1	93	12.20	3.31	15,326	3.29*
	Group 2	97	7.17	3.52		
	Group 3	154	8.15	3.93		
Family status	Group 1	87	2.22	.47	2,325	.19
	Group 2	101	2.04	.45		
	Group 3	146	2.19	.46		
Family income	Group 1	75	3.67	1.02	4,261	.68
	Group 2	88	2.74	.88		
	Group 3	113	3.30	.91		
Socioeconomic status	Group 1	98	16.36	5.30	23,330	1.51
	Group 2	106	10.76	4.66		
	Group 3	154	12.51	4.71		

* = $p < .05$.

Research Question D

Based on their school location, does students' socioeconomic status, as measured by their reported family-income status, significantly affect students' scores on the CVMT?

Questionnaire item 12 asked students to indicate their family-income status. Students were asked to check one of the three categories that best described their family: "My family makes less money than most other Grade 9 students' families in Alberta./My family makes about the same amount of money as most other Grade 9 students' families in Alberta./My family makes more money than most other Grade 9 students' families in Alberta." Students' responses were coded and analyzed employing an ANOVA. Students reported family-income status was found to have no significant effect on students' scores on the CVMT ($F = .19$, $df = 2,325$, $p > .05$) (refer to Table 4-6). Students who indicated that their family made an average or a lesser amount of money did not score significantly different on the CVMT than those students who stated that their family made more money than other Grade 9 students' families in Alberta. Because family income status had no effect on students' CVMT scores, further analysis of this variable by students' school location was not pursued.

Research Question E

Based on school location, does students' socioeconomic status, as measured by their reported yearly family income, significantly affect students' scores on the CVMT?

Using an ANOVA, students' responses to the questionnaire item on family income (13) were analyzed, and the results are presented in Table 4-6. This item states, "YOUR TOTAL FAMILY INCOME PER YEAR, BASED ON THE INCOME OF THE ADULTS WHO LIVE IN YOUR HOME, WOULD BE . . . ." Students were given five options that presented income ranges and corresponding verbal descriptions such as middle income, high income, or lower income. The results indicated that there was no relationship between reported family income and scores on the CVMT ($F = .68$, $df = 4,261$, $p > .05$). Those students who reported low family incomes did not score significantly different on the CVMT than those students who reported middle or higher family incomes did. Further analysis of differences in students' reported family income by their school location was not undertaken because it was found to have no effect on students' CVMT scores.

Research Question F

Based on school location, does students' socioeconomic status (calculated as the total sum of students' responses to questionnaire items 9/10, 12, and 13) significantly affect their scores on the CVMT?

The results of the ANOVA, presented in Table 4-6, indicated that students' total socioeconomic status score did not significantly affect their performance on the CVMT ($F = 1.51$, $df = 23{,}330$, $p > .05$). Students who received high total SES scores did not score significantly differently on the CVMT than those who had total SES scores in the middle or lower ranges did. Because students' total SES scores were found not to influence their CVMT scores, further analysis of this variable by students' school location was not pursued.

Based on the results of the analysis of Research Questions C, D, E, and F, a number of conclusions can be drawn. The level of students' parents' highest reported occupation was found to have a significant influence on students' CVMT scores. Moreover, students who attended schools in higher SES urban areas reported that their parents held significantly higher levels of jobs than the parents of the other two groups of students. Students' reported family-income status, family-income range, and their total socioeconomic scores, however, were found to have no effect on their CVMT scores.

Research Question G

Is there a significant difference in students' job knowledge based on their school location? Job knowledge is measured by the following:

1. **the highest level of job listed for which students stated that they knew the training and education requirements, the work conditions, and the duties;**
2. **the total number of jobs for which students stated that they knew the training and education requirements, the work conditions, and the duties.**

Based on student responses to item 8 of the student questionnaire, "LIST ALL THE JOBS/OCCUPATIONS YOU FEEL YOU KNOW A LOT ABOUT. FOR EXAMPLE, LIST THOSE JOBS/OCCUPATIONS FOR WHICH YOU KNOW THE TRAINING REQUIREMENTS, EDUCATION REQUIREMENTS, DUTIES, WORK CONDITIONS," knowledge of jobs was calculated in two ways. First, of the student responses that could be categorized, the highest level of job listed was determined using the

Revisions of the Pine-Porter-McRoberts Socioeconomic Classification of Occupations for the 1981 Census (refer to Appendix B and Chapter 3 for the coding guidelines used). Second, the total number of jobs listed by each student was calculated. In order to determine whether students in the various locations had significantly different levels of job knowledge, the oneway ANOVA was employed.

Highest job variable listed. A significant difference was found between student responses from the three school locations when comparing the highest level of jobs for which students stated that they knew the training and education requirements, work conditions, and the duties (F = 16.85, df = 2,355, $p < .05$), as shown in Table 4-7. The means of the three groups of students' responses were compared using the Scheffé method of multiple comparisons between means. Of the responses that could be categorized, students at Group 2 schools had a mean level of highest occupation listed ($\bar{x} = 9.02$) that was significantly lower than that for Group 1 students ($\bar{x} = 12.23$) and Group 3 students ($\bar{x} = 13.12$) (refer to Appendix B for the complete list of classification codes). Group 2 students' average responses were categorized at the occupation level of Foremen and -women. Group 1 students' responses were categorized at an average occupation level of Technicians, and Group 3 students' responses were categorized at the level of Semi-Professionals. Nonurban students and those who went to schools located in higher SES areas of the city indicated that they knew about jobs that were categorized at higher occupation levels than the job titles provided by students who attended the two schools in the lower urban SES areas.

Number of jobs listed. Students at the three different school types differed significantly in the number of jobs for which they reported that they knew the education and training requirements, the work conditions, and the duties (F = 14.37, df = 2,355, $p < .05$) (refer to Table 4-7). The means of the three groups of students' responses were compared using the Scheffé method of multiple comparisons between means. Students in Group 3, those attending nonurban schools, reported knowing about a significantly greater number of jobs ($\bar{x} = 4.54$) than those in Group 1 ($\bar{x} = 3.72$) or Group 2 ($\bar{x} = 2.90$) did.

Table 4-7

Results of Oneway ANOVA Comparing Students' Scores on the Cognitive Vocational Maturity Test and Scores on Questionnaire Items 8, 14, 15, 16, and 17, Based on Their School Location

Variable	School location	n	$\bar{x}$	SD	df	F
Score	Group 1	98	91.71	15.61	2,355	36.19*
	Group 2	106	70.69	24.00		
	Group 3	154	86.80	16.54		
Number of jobs listed	Group 1	98	3.72	2.55	2,355	14.37*
	Group 2	106	2.90	2.53		
	Group 3	154	4.54	2.30		
Highest job variable listed	Group 1	98	12.23	6.21	2,355	16.85*
	Group 2	106	9.02	6.68		
	Group 3	154	13.12	4.57		
Highest occupational aspiration	Group 1	91	14.77	1.77	2,331	11.01*
	Group 2	96	13.06	3.59		
	Group 3	147	12.84	3.63		
Total training score	Group 1	98	6.85	1.80	2,355	5.06*
	Group 2	106	7.32	1.67		
	Group 3	154	6.63	1.72		
Amount of education	Group 1	95	5.78	.59	2,352	28.19*
	Group 2	106	4.73	1.43		
	Group 3	154	4.66	1.34		
Preparedness	Group 1	91	2.18	1.10	2,330	7.49*
	Group 2	95	2.47	1.04		
	Group 3	147	1.96	.93		

* = $p < .05$.

Research Question H

Based on school location, is there a significant difference in the students' highest level of occupational aspiration?

Data was obtained to answer Research Question H from students' responses to questionnaire item 14: "WHAT JOB(S) OR OCCUPATIONS(S) WOULD YOU LIKE TO HAVE WHEN YOU ARE AN ADULT?" The item indicated that two responses were requested. Students' responses were rated and coded according to the coding guidelines outlined in Chapter 3. The complete list of classification codes is presented in Appendix B. A oneway ANOVA was used to determine if there were differences in students' aspirations (using the highest level of occupation students listed that could be categorized) as a result of their school location. A significant difference was found between the students' responses at the three school locations ($F = 11.01$, $df = 2{,}331$, $p < .05$), as shown in Table 4-7. The Scheffé test used to compare group means indicated that the average highest reported occupational aspiration of students from Group 1 ($\bar{x} = 14.77$) was significantly different from those of Group 2 students ($\bar{x} = 13.06$) and Group 3 students ($\bar{x} = 12.84$). Students from higher SES areas of the city tended to aspire to occupations which were categorized in the range of High-Level Management and Employed Professionals, whereas students attending schools in reportedly lower SES areas of the city aspired to occupations in the category of Semi-Professionals. Nonurban students most often chose occupations in the range of Technicians and Semi-Professionals.

Research Question I

Based on school location, is there a significant difference in students' scores pertaining to their knowledge of the training/education requirements for their reported occupational aspirations?

The oneway ANOVA was employed to determine if there was a significant difference between the scores that students at the three locations received to questionnaire item 15: "WHAT EDUCATION OR TRAINING WILL YOU HAVE TO COMPLETE IN ORDER TO BE QUALIFIED TO GO INTO THE JOB(S)/OCCUPATIONS YOU STATED IN QUESTION 14? (PLEASE DESCRIBE.)" Students' explanations of the education and training requirements of their stated occupational aspirations were coded as to their accuracy. Each explanation received a score ranging from 5 (No answer/States "I don't know") to 1 (Clear understanding). For further information on coding, refer to Appendix B.

Applying the Scheffé test to compare group means, a significant difference was found between Group 2 ($\bar{x} = 7.32$) and Group 3 ($\bar{x} = 6.63$) students ($F = 5.06$, $df = 2{,}355$, $p < .05$), as shown in Table 4-7. Of the three groups of students, the students from nonurban schools provided the most realistic descriptions of what training/education would be required to prepare for their listed occupational aspirations. These students' descriptions were rated significantly higher than those received by students at the two urban schools located in lower urban SES areas.

Research Question J

Based on school location, is there a significant difference in the stated level of education that students expect to attain?

Questionnaire item 16 asked students, "HOW MUCH EDUCATION DO YOU EXPECT TO GET?" Students were asked to choose among six possible responses to this question, ranging from "Some high school" to "Graduate from university." Appendix B includes the item and coding information.

Employing the oneway ANOVA, a significant difference was discovered among students at the three locations when they were asked to indicate the amount of education that they expected to achieve ($F = 28.19$, $df = 2{,}352$, $p < .05$). The Scheffé test comparing group means indicated that Group 1 students stated that they planned to achieve a significantly higher amount of education ($\bar{x} = 5.78$) than Group 2 students ($\bar{x} = 4.73$) and Group 3 students ($\bar{x} = 4.66$), as is presented in Table 4-7. Students from the nonurban areas indicated that they planned to attain the least amount of education. Both Group 2 and Group 3 students' average responses indicated that they expected to complete vocational schooling or obtain some university. Those students attending urban schools in higher urban SES areas indicated more frequently that they expected to obtain some university or graduate from university.

Research Question K

Based on school location, is there a significant difference in the scores that indicate students' feelings of preparedness to make decisions and plan for a future job/occupation?

The oneway ANOVA was conducted to determine if there was a significant difference in the ratings that students' responses received in answer to student questionnaire item 17: "HOW PREPARED DO YOU FEEL TO MAKE DECISIONS AND PLAN FOR A FUTURE JOB/OCCUPATION? (PLEASE EXPLAIN.)" The responses that students provided were coded as to whether they indicated that they felt prepared, were somewhat prepared, or did not feel prepared. Coding criteria are outlined in Appendix B. As indicated in Table 4-7, a significant difference was found between two of the groups of students ($F = 7.49$, df = 2,330, $p < .05$). The Scheffé test comparing group means shows Group 2 students ($\bar{x} = 2.47$) were rated significantly less prepared than Group 3 students ($\bar{x} = 1.96$) were. Nonurban students were rated as indicating that they felt the most prepared to plan for a future job/occupation; whereas, Group 2 students, those attending urban schools in reportedly lower SES areas of the city, were rated as indicating that they felt the least prepared to make decisions and plan for a future job/occupation.

Research Question L

Is there a significant difference between the mean CVMT scores of farm and nonfarm students?

1. **For each of the items in the questionnaire, is there a significant difference between the mean responses of farm and nonfarm students?**

The research sample was divided into those students who stated that they lived on a farm ($\bar{x} = 86$) and those who said they did not ($\bar{x} = 272$). Based on this division, *t* tests were used to determine if there were significant differences in students' scores on the CVMT and student responses to the questionnaire items. The results of the *t* tests are shown in Table 4-8.

Table 4-8 indicates that no significant difference between the means of the two groups was observed when students' responses to each of the following questionnaire variables were compared: *reported academic achievement* {$t(356) = -.29$, $p > .05$, two-tailed}; *gender* {$t(356) = .31$, $p > .05$, two-tailed}; *reported family status* {$t(332) = .84$, $p > .05$, two-tailed}; *reported family income* {$t(120.57) = -.73$, $p > .05$, two-tailed}; and *total socioeconomic status score* {$t(189.53) = -1.84$, $p > .05$, two-tailed}. As well, there was no significant difference found between the means of the CVMT scores for students who stated they lived on farms and those students who stated that they did not {$t(233.42) = 1.91$, $p > .05$, two-tailed}. Thus, farm students appeared to have performed as well on the CVMT as nonfarm students did, and the two groups appeared to be comparable on several variables that have been found to influence adolescents' levels of occupational knowledge. Significant differences were found between the two groups of students, however, when the following variables were considered.

Table 4-8

Results of t Tests Comparing Farm and Nonfarm Students' Cognitive Vocational Maturity Test Scores and Responses to Student-Questionnaire Variables

Variable	Home location	n	$\bar{x}$	SD	df	t value
Score	Farm	86	86.29	13.79	233.42	1.91
	Nonfarm	272	82.45	22.28		
Number of jobs listed	Farm	86	4.67	2.22	356	3.61*
	Nonfarm	272	3.56	2.57		
Highest job variable listed	Farm	86	13.58	3.84	240.77	4.45*
	Nonfarm	272	11.06	6.38		
Highest parent job	Farm	86	8.21	3.63	170.61	-2.14*
	Nonfarm	258	9.22	4.30		
Highest occupational aspiration	Farm	84	12.29	3.85	119.32	-3.31*
	Nonfarm	250	13.81	3.03		
Total training score	Farm	86	6.58	1.43	181.16	-2.17*
	Nonfarm	272	6.99	1.83		
Amount of education	Farm	86	4.53	1.36	353	-3.67*
	Nonfarm	269	5.12	1.26		
Preparedness	Farm	81	1.83	.89	157.11	-3.75*
	Nonfarm	252	2.27	1.05		

* = $p < .05$.

Number of jobs listed. As is presented in Table 4-8, farm students, when asked to list those jobs for which they knew the training and education requirements, the work conditions, and the duties, provided a significantly greater number of occupations ($\bar{x}$ = 4.67, SD = 2.22) than nonfarm students did ($\bar{x}$ = 3.56, SD = 2.57) {$t(356) = 3.61$, $p < .05$, two-tailed}.

Highest job variable listed. Farm students, when asked to list those jobs for which they knew the training and education requirements, the work conditions, and the duties, listed occupations that were given category ratings that were significantly higher (n = 86, $\bar{x}$ = 13.58, SD = 3.84) than their nonfarm counterparts did (n = 272, $\bar{x}$ = 11.06, SD = 6.38), {$t(240.77) = 4.45$, $p < .05$, two-tailed}. Those Grade 9 students who reported living on a farm provided job titles that, on average, were in the category ranges of Semi-Professional and High-

Level Management. Nonfarm students' average ratings referred to those occupations in the category of Middle Management. Coding classifications are outlined in Appendix B.

Highest parent job. Those students who stated that they lived on farms reported that at least one of their parents held occupations that were rated significantly lower than those of the parents of nonfarm students $\{t(170.61) = -2.14$, $p < .05$, two-tailed$\}$, as shown in Table 4-8. Farm students reported that at least one of their parents held an occupation in the average category range of Skilled Clerical Sales and Service ($\bar{x} = 8.21$). Students who did not live on a farm, however, indicated that at least one of their parents held an occupation in the average category range of Foremen and -Women ($\bar{x} = 9.22$).

Occupational aspirations. A significant difference was detected between farm and nonfarm students and their stated highest occupational aspirations $\{t(119.32) = -3.31$, $p < .05$, two-tailed$\}$, as is shown in Table 4-8. The coding classifications used to categorize students' occupational aspirations are outlined in Appendix B. Farm students listed occupations whose rated level ($x = 12.29$, SD 3.85) was significantly lower than that of nonfarm students ($x = 13.81$, SD = 3.03). Of the farm students' occupational aspirations that could be coded, the average category rating referred to Technician occupations. Nonfarm students provided job titles that, on average, were in the range of Semi-Professionals and High-Level Management.

Total training score. Farm and nonfarm students also differed significantly in the total scores that indicated their understanding of the training/education required to obtain each of their occupational aspirations $\{t(181.16) = -2.17$, $p < .05$, two-tailed$\}$, as is shown in Table 4-8. A description of the coding criteria is included in Appendix B.

Farm students appeared to know more about the training and education requirements of their stated occupational aspirations than students who indicated that they did not live on a farm did. The descriptions provided by farm students of training/education requirements were rated significantly higher ($x = 6.58$, SD = 1.43) than those of their nonfarm peers ($x = 6.99$, SD = 1.83). (Coding criteria resulted in lower scores, indicating more accurate statements.)

Amount of education. The significant results presented in Table 4-8 indicate that farm students expected to complete less education than nonfarm students did $\{t(353) = -3.67$, $p < .05$, two-tailed$\}$. Farm students indicated that, on average, they would complete vocational schooling and possibly some university ($x = 4.53$, SD = 1.36). Nonfarm students intended to obtain, on average, some university (x = 5.12, SD = 1.26).

Preparedness. Farm students' scores were significantly different from those of nonfarm students when considering how prepared they felt to plan and make decisions for a future occupation {$t(157.11) = -3.75$, $p < .05$, two-tailed}. These results are shown in Table 4-8. A description of the coding criteria used to classify students' responses is included in Appendix B. Farm students' responses were rated as indicating that they felt more prepared (n = 81, x = 1.83, SD, .89) than their nonfarm peers did (n = 252, x = 2.27, SD = 1.05).

In summary, when the participants' results were divided into two groups based on farm and nonfarm residency, further information was accessed. No significant differences between the two groups were found when comparing some of the variables: CVMT scores, gender ratios, academic achievement levels, family-income range, family-income status, or socioeconomic status. However, when asked to list the occupations for which they knew the training, education requirements, duties and work conditions, farm students tended to list not only more jobs, but also those having higher category ratings, than nonfarm students did. Moreover, farm students tended to know more about the training and education requirements needed to achieve their occupational aspirations, and they were more inclined to report that they felt prepared to plan for a future job/occupation. However, the occupations reportedly held by farm students' parents were rated significantly lower than those occupations held by parents of nonfarm students. Moreover, farm students aspired to occupations given lower category ratings, and reported that they expected to obtain significantly less education than their counterparts who did not live on farms did.

Chapter Summary

The results presented in this chapter review the statistical analyses conducted on students' scores on the CVMT and their responses to the questionnaire. They provide information as to the performance of the instruments used, and more importantly, students' levels of occupational knowledge and influences on that knowledge.

There were several nonsignificant findings. Parental-occupation level was found to have almost no relationship with the number or level of jobs of which students stated that they were knowledgeable. Measures of socioeconomic status had neither strong interrelationships nor the expected correlations with students' reported occupational aspirations. In addition, questionnaire items addressing students' family-income status, family-income range, and total socioeconomic status did not have significant effects on their CVMT scores. The validity of these questionnaire items, therefore, was in doubt. Nor were there significant differences between farm and nonfarm students when their family-income, family-status, or total socioeconomic scores were considered. When students were allocated to farm and nonfarm groups, no significant difference was found in their CVMT scores.

The majority of results, however, indicate a number of significant relationships between variables and influences on those variables. The majority of items on the questionnaire concerned with students' socioeconomic status, level of academic achievement, level of occupational knowledge, and their occupational and educational aspirations were positively correlated with each other and with students' scores on the CVMT. These relationships have been noted in previous studies, as reviewed in Chapter 2. Gender was found to influence students' CVMT scores, and academic achievement accounted for 25% of the variance in their scores. Students' reported parental-occupation level was also found to influence their scores significantly on the CVMT at the three school locations.

Students' scores on the CVMT, as well as their responses to the student-questionnaire items, appeared to be influenced by the location of the school they attended. Significant differences were noted not only among urban and nonurban students, but also among urban students of different school locations. Students who attended those urban schools in lower socioeconomic areas of the city tended to score lower on the CVMT and to indicate that they were knowledgeable about lower rated jobs. As well, they tended to know significantly less about the training and education requirements of their occupational aspirations. Nonurban students stated that they knew about more jobs than those students from the urban schools did, and they felt significantly more prepared to plan for a future job than their counterparts did. Urban students from higher SES areas indicated that they planned to attain more education than the other two groups of students did, and they reported that at least one of their parents held significantly higher rated occupations than the parents of the other two groups of students did.

When the sample was divided into those students living on farms and those who did not, further significant findings were apparent. Despite being more knowledgeable about occupations and stating that they felt more prepared to plan for their future job/occupation, farm students stated lower occupational aspirations and educational expectations than their nonfarm peers did. Farm students also reported that their parents held significantly lower rated occupations than the parents of those students who did not live on farms did.

These findings, obtained through a quantitative analysis of the data, provide information that enables a comparison of urban and nonurban Grade 9 students' levels of occupational knowledge. In addition to this data, the questionnaire provides a great deal of information that is lost in a totally quantitative approach. Students' responses to the questionnaire items (some of which could not be coded because they did not fit the required criteria) provide another dimension to the study of students' occupational knowledge. Students' written responses to the questionnaire items reminded the researcher of the complexities of attempting to comprehend adolescents' understanding of the world of work and their role in planning for the future. Whenever pertinent, this qualitative data is included in Chapter 5, which provides conclusions derived from this study, as well as a discussion of the study's significance and suggestions for future research.

CHAPTER 5

DISCUSSION

> *At the age of fifteen, many adolescents have little knowledge of the world outside their own family and school, but by the age of nineteen they have often gained some experience in the labour force, met a wider circle of friends, and established a relationship which could lead to marriage. However, this increased knowledge and experience seems to make adolescents more traditional in their occupational choices and sometimes in their general life goals. (Baker, 1985, p. 155)*

> *No one really questions the value of accurate information to mature vocational behavior. (Westbrook & Mastie, 1974, p. 41)*

The current study was undertaken due to a concern that students who live in nonurban areas may, because of their location, lack exposure to the variety of occupations that are available. It was believed that this lack of exposure may result in nonurban students limiting their career goals and expectations in comparison to students who live in more urban centres, where there is a greater opportunity to observe and learn about the vast number of occupations available. Thus, it was the purpose of this study to examine if there are indeed any significant differences between urban and nonurban students' levels of occupational knowledge.

During the course of this study, student participants completed a questionnaire and the Cognitive Vocational Maturity Test (CVMT). Their teachers were interviewed in order to ensure that students had completed similar activities in the Life Careers unit of the Alberta Health and Personal Life Skills curriculum. The questionnaire items were coded and provided further information on a number of variables that have been found to be related to occupational knowledge and/or career maturity. The literature pertaining to these relationships is reviewed in Chapter 2. The sample was divided according to their school location, and students' responses were then compared. Statistical analyses, as outlined and discussed in Chapter 4, were conducted. Significant differences were found between nonurban students, urban students from higher SES school locations, and urban students from schools located in lower SES areas. As well, significant differences were noted between responses of farm students and those of nonfarm students. In this chapter it is the intention of the researcher to discuss the major findings resulting from this project, as well as to determine the significance of this study and areas that future research may address. Whenever pertinent, the students' responses to questionnaire items are included. This qualitative data provides additional information and explanation that may further our understanding of adolescents' perceptions during this stage of development.[2]

Concern About the Future World of Work

As discussed in Chapter 1, the global economy is undergoing significant changes that have had, and will continue to have, an impact on the workplace. Students' responses to the questionnaire demonstrate that they are concerned about their future, and they are not unaware of the changes happening in the current labor market.

> [A female student from East School stated that she aspired to] *own my own hair saloon or go for a layer. . . . I am prepared because I no it hard right now with the cuts so I'm going for a job that they can't cut me off.*
>
> *I think I am relatively well prepared, although I don't know what the job market will be like in the future.* (male student from South School)
>
> *I am very prepared with the knowledge about education and other requirements but I'm unprepared when it comes to getting a job. I don't know if I'll be able to get a job.* (male student from North School)
>
> *I'm not totally sure if I'm ready to make a decision on my future career. I know what I want now but with the changing economy it is hard to say.* (female student from Rodeo School)
>
> *Not very [prepared] with the job market so unstedy I never know if I'm making the right choice.* (female student from North School)

Not only do students seem to be concerned about the changes currently taking place in the economy, but they are also aware of the importance that society places on education and the need for them to acquire an education. Students who participated in this study appeared to understand that in order to obtain their occupational aspirations, it is important that they remain in school. As discussed in Chapter 1, education/training requirements will likely increase as demand for workers in more specified and technical occupations increases (Alberta Advanced Education and Career Development, 1993b). Although students did not discuss these advances directly, when asked how prepared they felt to make decisions and plan for a future job, their comments indicate that they are aware of the necessity of an education:

---

[2] Wherever possible, an attempt was made to present the students' comments in their own words. Therefore, no changes were made to students' punctuation, capitalization, word usage, or grammar. Italics were used to indicate the students' own words.

> *Right now, I'm not that prepared because I have my education to think about. It's my #1 priority. it's the only thing that's going to get me my dream job.* (female student from East School)
>
> *get the best education I can.* (male student from East School)
>
> *Don't drop out and do good in school.* (male student from East School)
>
> *I feel very prepared because I have been working hard on my education to get into University.* (male student from Rodeo School)
>
> *About as prepared as I can be right now, still a little scared. You have to worry about marks, and if there'll be a job for you later.* (Female student from Farm School)
>
> *I feel that I am very prepared. I know how competitive it is getting out there and how hard it will be to obtain a job. I feel that I will have to work very hard and study a lot.* (male student from West School)

The concern that these students expressed about their future is similar to the findings of other studies (Posterski & Bibby, 1988; Canadian Teachers' Federation, 1990; Neufeld & Ferner, 1993). However, what has not been examined thus far in this study, and what should be considered throughout a discussion of the current findings, is the perceptions that youth have of the world and their place in it. Youth seem to be dealing with a number of issues during the adolescent period—psychological, social, and physiological—and these may at times possibly interfere with or impede their ability to plan realistically for a future occupation. For example, when students were asked how prepared they felt to plan for a future job/occupation, numerous examples of issues that may be concerning them during this period were apparent:

> *I don't know if I'm ready for the future because a person can die any moment* (male student from East School)
>
> *not prepared. I don't feel that youn people can get important jobs in this society* (male student from North School)
>
> *Not prepared at all because life is running me so fast* (female student from West School)
>
> *my life, my mess* (male student from Farm School)
>
> *Not very prepared for my future because I am really lazy* (female student from Farm School)

> *okay, I'm a christian & the Lord will be back any day so I have no idea.* (female student from Dairy school)

> [In describing her father's job, a Farm School student wrote,] *pilot; drivin a plane; I don't care I don't talk to him.*

> [A Farm School student wrote that she aspired to be a model and added,] *but don't have a chance*

> *I have no idea what I want to be in life.* (female Farm School student)

> *I feel it is to early to be prepared at all right now I am worried about next year and next year I will worry about the year to come.* (female West School student)

These comments emphasize that career planning is only one of many issues that may be of concern to adolescents, and that other issues such as family problems, feelings concerning self-efficacy, self-esteem, and powerlessness, may be more important to them. Fear and apprehension about the future are also apparent in students' responses. Some indicated that they were *"nervous"* or *"need more time,"* and another stated, *"I don't even know what I want to be yet."*

The belief that a career choice is life-long and irreversible still lingers, despite current evidence that youth will likely change occupations and possibly careers several times over their working life (Alberta Advanced Education & Career Development, 1993b). This belief likely adds a great deal of stress to this decision-making period in adolescents' lives. When asked how prepared they felt to plan for a future job/occupation, some students expressed this concern:

> *I feel prepared but I'm scared that once I get into an occupation, I might not like it.* (female East School student)

> *I don't feel prepared at all for making plans/decisions for a future job/occupation because before grade 9, there wasn't much discussion on the topic. Now all of a sudden we have to make decisions that will effect the rest of our lives.* (female Farm School student)

> *Not really prepared because I'm not sure of a job occupation and if I make a wrong choice now it could screw up my whole career.* (female Valley School student)

> *I feel that I am not even near ready to make a decision that will last my entire life.* (female student from West School)

Thus, although the results of the quantitative analysis of the data provide a great deal of information concerning the levels of occupational knowledge of the students at the three types of school locations, as well as their aspirations, expectations, and feelings of preparedness, there is a great deal more taking place during this period. The qualitative statements support the belief that adolescents are dealing with uncertainty, pressures, issues with friends and family, as well as concerns about the future. These other issues may strongly influence students' attitudes, expectations, and behaviors with regard to their being open to and prepared for obtaining occupational information and planning for a future career.

Occupational Knowledge

Of primary concern in this study was students' levels of occupational knowledge. As discussed in Chapter 4, a significant difference was found in students' levels of occupational knowledge depending not only on their urban/ nonurban school location, but also on the location of their school within the urban centre and on their home residency.

CVMT Results

With regard to students' scores on the CVMT, students who attended urban schools in lower SES areas of the city scored significantly lower on the test than the other urban students and the students from nonurban areas did. On this measure, there were no urban/nonurban distinctions per se; farm students' CVMT mean scores were found not to be significantly different from nonfarm students.

A number of factors may have contributed to the depressed scores achieved by students attending the lower SES urban schools. First, the amount of time that teachers spent on instruction of the Life Careers unit, as reviewed in Appendix C, appeared to be much less in the two schools in lower SES areas. One of these schools had not yet even begun instruction in the unit, and this may have severely affected students' scores. Second, cultural, language and student differences may have also been a factor. Many of the students at the two schools in the lower SES urban areas were described as having special educational needs (refer to Chapter 3 for further information). A student from East School described his father's job as, *"he kill the chicken; well he hang chicken; they kill chicken and he hang the chicken for her."* Another student from this school wrote, *"I know how It is because I do run the busisness for my parent Because I am the only one who specks english in my family."* Although the median reading skills needed to complete the CVMT were assessed at Grade 1.4 to Grade 2.2 (Westbrook & Parry-Hill, 1973), this expectation may have been beyond the skill level of some students. As stated in

Chapter 3, the two urban, lower SES schools may have had a proportionately higher number of students with weaker reading- and writing-skill levels, and this may have affected the students' performance. Therefore, at these two locations the CVMT and questionnaire may not have measured students' occupational knowledge, but rather their proficiency at reading and writing.

The two schools located in lower SES areas of the city were the only locations where the researcher was not able to administer the project to all participants individually. The difference in administration procedures may have had some effect on student performance. As described in Chapter 3, **Data Collection,** students at these two schools appeared to the researcher to be the least motivated to take part in the assessment, and this may have had some bearing on students' results.

Another factor that may have contributed to students' performance is their socioeconomic status. Students' parents' level of occupation was found to influence significantly their CVMT scores, and students from these schools reported that their parents held jobs that received the lowest category ratings. These students and those from nonurban areas reported that their parents held occupations that were rated significantly lower than those of parents of students from schools in higher urban SES areas. As discussed in Chapter 2, and similar to the findings of this project, a number of studies have found that measures of adolescents' SES, measured by their parents' occupation level, influenced their levels of occupational knowledge and career maturity (Fadale, 1975; Koppel & DelRoccili, 1982; Jyung & Miller, 1990). Super (1984) contends that, even though "it is still possible that severe poverty may affect vocational maturity, its negative effects appear to be limited to a very small proportion of the poor who, in inner cities, get as far as tenth and eleventh grades" (p. 214). Nonetheless, given similar findings in other studies, the effects of SES on students' CVMT scores cannot be discounted. The lower rated parental occupations reported by these students may have some effect on students' levels of occupational knowledge.

Questionnaire Measures of Occupational Knowledge

On the student-questionnaire measures of occupational knowledge, nonurban students, again, did not appear to be at a disadvantage. Occupational knowledge was measured in three ways. The number of jobs of which students stated that they were knowledgeable and the levels of these jobs were compared. As well, the students' understanding of the education/training requirements of their occupational aspirations was rated and compared. Those students attending nonurban schools reported that they were knowledgeable of a statistically greater number of jobs than the urban participants were, and they received scores indicating the most accurate explanations of the training/education requirements for their chosen occupations.

> *I feel totally prepared, I bough my first cow for $1000 when I was 10 and everything I'have I've bought and worked for, and I'm really prepared.* (male Valley School student)

These findings are similar to those of other researchers (Super & Overstreet, 1960; Laurikainen, 1986; Jyung & Miller, 1990; Neufeld, 1992), who concluded that rural students appeared to have greater occupational knowledge or career maturity.

Students from lower SES areas of the city reported that they were knowledgeable of jobs that received significantly lower category ratings than those of students in schools in higher SES areas and those from nonurban schools. Overall, nonurban students reported being knowledgeable of jobs receiving the highest category ratings. As well, the jobs listed by farm students received ratings which were significantly higher than those provided by their nonfarm peers. These findings dispute earlier assumptions that nonurban students would be less knowledgeable about occupations given their location (Rich, 1979; Elliott, 1987; McKenna & Ferrero, 1991; Jeffery et al., 1992). The fact that none of the nonurban students who participated lived more than two hours' driving distance from a major metropolitan centre may provide one explanation for these findings (Laurikainen, 1986). Other possible factors may also be considered.

Based on the information provided by students' health teachers who participated in an interview, as reviewed in Appendix C, the majority of nonurban students received a great deal of instruction time in the Life Careers unit. In one case, nonurban students received 37 more class periods of instruction in the unit than students from one of the lower SES urban schools did. Perhaps the nonurban teachers were concerned about a possible discrepancy in the amount of occupational information available to their students, and they attempted to compensate for it.

It may also be speculated that nonurban students were more motivated to perform well on the assessment. It appeared to the researcher when visiting some of the nonurban schools that participating in a research project was a novelty to the students. For this reason, nonurban students may have wanted to perform well and list more occupations than students in the urban schools, who may have had more opportunities to participate in research projects. They also may have viewed the project competitively, because they were told that their performance would be compared to that of students from an urban centre. Thus it may not have been that nonurban students were in fact more knowledgeable, but that they were more motivated to supply answers on the questionnaire. In addition, all of the mitigating factors discussed earlier, dealing with students' CVMT results, may have also contributed to students' performance on the questionnaire items measuring occupational knowledge.

In light of the findings indicating significant quantitative differences in students' levels of occupational knowledge, a review of their responses to questionnaire items that required them to provide job titles suggests confusion/lack of understanding of occupations. When asked to list jobs of which they were knowledgeable, several students provided job titles which were often difficult to classify:

> *Bingo*
> *Mehihancail*
> *subway*
> *Subway worker (unfortunately)*
> *Sciences (Jobs)*
> *medical studies*
> *Bowling Alley, Tire store, Xerox, refridgeration*
> *basket weaver, pimp*
> *construction, automotive*
> *sports, security*
> *barrel racer*
> *wash wool*
> *computers, motorbikes*

When students were asked to state their occupational aspirations, they showed a lack of clarity in many of their responses. In addition, the diversity of students' career interests was apparent, as well as the optimism that many adolescents have for their future.

> *medical*
> *Space sciences*
> *heavy-duty mechanic; accountant (baseball player if possible)*
> *veternarian, computer literit/engineneer*
> *Policeman; Constructor*
> [Student wrote,] *Priest* [apparently erased it and wrote,] *Pope*
> *Engnieer; father*
> *D.H. E., something do with 4-H*
> *Architect; animal keeper*
> *Sports and recreation*
> *lawyer; pro football lightend*

> *engineer; hairdresser*
> *Farmer; Aeronautical engineer*
> *A professional athelete; A great musician. . . . I'm not very prepared because all my jobs are a long shot for me to make it. But I'll try.*

Many of the job titles provided by students could not be coded because of the ambiguity of the titles provided. This lack of clarity likely reflects students' uncertainty concerning various occupations.

When asked to explain the training or education required to obtain their occupational aspirations, again students' responses in many instances exemplified their lack of understanding of what preparation is needed for various jobs:

North School student:	*Computer Programmer—computer courses (programming, processing, computer sciences)* *Accountant—Mathematics*
East School student:	*In construction— . . . oil Industry—I don't really know but want to Learn more and one day become rich*
Rodeo School student:	*Accountent—high grades in math, good Education, university,* *comp Tech person—Go to college on the subject, high grades*
Farm School student:	*speech therapist—high school diploma; masters if you want a higher paid job, or just a bachelors.* *peadiatrition—high school diploma; phd; masters, bachelors*
Farm School student:	*construction—mechanics, math?* *logging - ?*
Dairy School student:	*Paleontologist/Genetic Engineer—I'm not sure but a whole lot of university*

Thus, although nonurban students demonstrated greater occupational knowledge on the questionnaire items addressing this variable, and their scores were not significantly lower on the CVMT, a review of students' responses indicates that many students, despite their locations, are confused and uncertain about jobs and what education/training is required to attain their occupational aspirations. Several students appeared to be aware of their lack of information, and they addressed this issue in their responses:

> *I would like to have more information at my disposal.* (female West School student)
>
> *Not really prepared because I don't know how to.* (female West School student)
>
> *I don't think I'm well Prepared because I don't know what I need to know.* (female East School student)

> *Nervous, but I don't have enough information, what to take to get there.* (female East School student)
>
> *Don't feel secure enough I think I need more information.* (male East School student)
>
> *I feel adequately prepared because I know what I have to accomplish to obtain that occupation, however, I am unsure as to how I'm going to accomplish what I have to and where I will go to do that.* (female South School student)
>
> *I'm prepared but need to know more about job openings and requirements.* (female Rodeo School student)
>
> *Not to prepared for I don't know exactly what my careers invlve.* (male West School student)

Thus, although there are apparent differences between students' levels of occupational knowledge, their nonurban/urban location is not an issue. Rather, other factors, such as students' school location within the city and their parental occupation level, may be factors which affect students' levels of occupational knowledge. Differences in the project-administration procedures, instruction time spent on the Life Careers unit, and students' reading and writing ability levels may also account for differences found in students' levels of occupational knowledge.

Preparedness

> *I don't feel I am well prepared. No one is pushing me to decide now.* (female West School student)
>
> *I don't feel very prepared I'm kind of scared.* (female student from Rodeo School)

Students attending the nonurban schools were found to feel the most prepared to make decisions and plan for a future job/occupation. Their scores on the questionnaire item addressing their feelings of preparedness were rated significantly higher than those of students attending the two lower SES urban schools. Moreover, farm students were rated as feeling significantly more prepared than their nonfarm peers did. These feelings of certainty concerning future decisions may reflect a greater career maturity. According to Super and Overstreet (1960), rural students (in their longitudinal study of rural boys) "often wanted to become farmers and thus were more highly oriented toward choice at the ninth-grade level" (p. 109). Jyung & Miller (1990) gave this as one possible explanation of their finding. The higher career maturity which these studies found may also be a reflection of students' feelings of being more prepared to plan for a future job/occupation. Interestingly, two students in the current study indicated that their nonurban location was a factor to consider when they reported their feelings of preparedness. One Rodeo School student indicated that she would like to be a film actor, performer, or journalist, and then stated, when asked how prepared she felt:

> *"Not enough. It is hard to be exposed to this kind of career opportunity in this area."*

A student from Diamond School indicated that she wanted to be an interior decorator or an architect:

> *"I feel that I am prepared for the world of work. It will be difficult because I live in a rural area, but exciting too."*

These students' responses demonstrate that they are aware of the difficulties that they may face because of their location. A lack of exposure to various occupations seems to be an issue, as well as the likelihood that they will have to leave their community in order to acquire further training.

Many students appeared to be aware that perhaps they were too young to make occupational decisions at this time. When asked how prepared they felt to plan for and make decisions concerning a future job/occupation, many students answered in the following fashion:

> *I feel that I am not mature enough (—old enough too) to decide these things yet. but I'm confident in my decisions.* (female East School student)

> *I take stress well and work well under pressure. I presently hold a part-time job at a food-chain store [name of store]. I feel I am not* fully *prepared to make decisions, but hopefully that will change as I go onto high school and learn more about decisionmaking.* (female West School student)

> *semi-prepared, I have a pretty good idea of what I'd like to be, but I still think I'm too young to have my whole future planned out.* (female South School student)

> *no, I think I'm to young I know my interest but I'm not ready to narrow it down into future jobs/occupations.* (female Rodeo School student)

> *I feel that I am able to make decisions, but that my decisions could be better in a few years.* (female student from Farm School)

> *I think I would be more prepared in Grade 12 after I have taken certain cources and know what I want to be.* (female student from Farm School)

> *I feel I am prepared to make some decisions to an extent but others will have to wait until I have more experience and information* (female student from Farm School)

> *I wouldn't want to make a decision now. I do know a fair bit about various occupations and know which jobs relate to my interests, but I wouldn't want to make a decision NOW.* (male student from Diamond School)

> *I feel that I'm far from ready for the future, but as I grow up I will be more prepared.* (female student from Dairy School)

Such a finding is interesting because, according to the teachers who were interviewed (refer to Appendix C for teachers' responses to interview questions), all students were in the process of selecting or had selected high school courses. The courses and programs chosen by the students could have a major impact on future training and education for which they will be eligible. It may be questioned whether these students are adequately prepared and capable of making such major decisions.

Gender

Students' gender was found to have an effect on their levels of occupational knowledge. Although the effect was not as great as students' school location, their gender influenced their CVMT scores. In all three school locations, girls scored higher than their male counterparts did. The effect of students' gender on CVMT scores existed even after controlling for the effect of academic achievement. The influence that gender had on students' levels of occupational knowledge was significant and prompted many questions worthy of further investigation. However, the researcher chose to limit the discussion to the following topics.

The findings in this study tend to replicate, to a degree, those of McDonald and Jessell (1992). Despite differences in research focus, these researchers found that seventh- and eighth-grade females scored higher on the CVMT than males did, and they tended to come from a middle to high socioeconomic status background, with an intact family. The current study also determined that females tended to score higher on the CVMT than the male participants did. Those girls attending the two urban schools from higher SES areas of the city also received the highest CVMT scores. Baker (1985) suggests that "coming from a wealthier and more educated family seems to broaden girls' horizons with respect to occupational choice." She states that higher SES girls are more likely to choose "more demanding university courses" and aspire to nontraditional jobs (p. 155).

McDonald and Jessell (1992) discuss their concern for those males from lower SES areas who, as seen in this study, tended to score lower on the CVMT. They state that these males also indicated lower self-esteem, considered fewer career possibilities for themselves, and doubted their abilities to perform them successfully.

> While self-esteem and cognitive vocational complexity are subject to intervention within the school environment, SES and family life situation are variables which, to a large measure, are independent of the school's influence and thus even more resistant to change. . . . Young adolescents residing in lower SES single-parent homes, who experience low self-esteem, and who are lacking in cognitive vocational complexity, are not likely to develop a career identity that contributes to occupational stability or satisfaction. (pp. 247-248)

These authors emphasize the need for those who work with children from lower SES areas to be aware of the real and perceived handicaps that these youth may face. They encourage those in schools to "identify children at-risk, provide remediation to correct unrealistic expectations, enhance motivation and address cognitive deficits and perceived personal deficiencies, and instill a belief that succeeding in school and in the future is possible" (p 248). As evidenced in the results from this study, the students from the schools in lower SES urban centres demonstrate less occupational knowledge and feel less prepared to plan for their future. Actions such as those suggested by McDonald and Jessell may help to improve these students' ability to plan successfully for their future careers.

Educational Expectations/Occupational Aspirations

The students attending schools in the higher SES areas of the city indicated that they expected to attain a significantly greater amount of education than the other urban students, and those students from nonurban areas did. These students also reported significantly higher occupational aspirations, and they received the highest CVMT scores. These results are similar to the findings of other studies (Howell, 1978; Jordaan & Heyde, 1979; Koppel & DelRoccili, 1982; Jyung & Miller, 1990). The students from higher SES school locations also indicated that their parents held occupations that were rated significantly higher than those of the other two groups of students. These findings are consistent with other studies (Koppel &

DelRoccili, 1982; Holms & Esses, 1988; Hannah & Kahn, 1989; Sarigiani et al., 1990); these researchers concluded that SES may have some influence on educational and/or occupational aspirations.

Students from lower SES urban schools and nonurban students expected to attain significantly less education and aspired to lower rated occupations than did their urban peers in higher SES schools. The lower expectations and aspirations of nonurban students were exemplified when farm and nonfarm students were compared. Students who reported living on farms had significantly lower educational expectations and occupational aspirations than the urban students and those who did not live on farms, despite their greater occupational knowledge. (Nonurban and farm students reported being knowledgeable of a greater number of jobs and those receiving higher category ratings, and they were more knowledgeable about the training/education requirements of their occupational aspirations.) When farm and nonfarm students were compared, no significant differences were determined in their levels of academic achievement, family-income range, family-income status, total socioeconomic score, or CVMT scores; and therefore, when comparing these groups of students, these variables do not account for the differences noted. However, farm students reported parental occupations that were rated significantly lower than those of students' parents who did not live on farms. Parental-occupation level may have had some influence on their aspirations and expectations for the future.

When comparing the two groups of urban students, factors which have been discussed previously may account for the disparities between the groups. For example, urban students attending schools in lower SES areas may have been less motivated to supply job titles, or the results may be due to the fact that these students had received less instruction in the Life Careers unit.

As previously suggested (Baker, 1985; Elliott, 1987; Jeffery et al., 1992), distance from educational facilities may possibly explain why nonurban students aspire to lower occupational aspirations and less education than their urban peers do. Fear of leaving the community, a lack of knowledge about educational and training facilities, as well as a lack of role models including people preparing for and performing various occupations may all be possible reasons for the differences noted. Baker suggests that a "lack of money or a combination of low income and a long distance from educational facilities may discourage young people from hoping to continue their education" (p. 52). In addition to these possible explanations, the influence of parental-occupation level may also be considered. Both the lower SES urban students and the nonurban students reported that their parents held occupations that were rated significantly lower than those of the parents of students who attended schools in higher urban SES areas. Perhaps the students aspired to jobs similar to those that their parents held, and their occupational aspirations and educational expectations may have been moderated by this parental example. Other possible means of influence may also be considered.

Influence of Parents

Parental influence may account for some or all of the differences noted among the three groups of students. Parents can play a significant role in their adolescent's career development, level of career maturity, and level of occupational knowledge (Larter et al., 1982; Otto, 1991; Bibby & Posterski, 1992; Young, 1994). When asked, "How prepared do you feel to make decisions and plan for your future job/occupation?" some students in this study indicated that their parents were attempting to have some influence in their child's career planning:

> *some what—my parents make sure I have my future mostly planned out* (female student from Farm School)
>
> *I think that I am able to make my own decisions and plan for my future job, because it is my decision to what I want to be, not what my parents want me to.* (female student from West School)

Other students indicated that they would be following their parents' occupation field, or that they intended to model their career plans after them and other adult role models in the family. A female student from West School did not list any jobs of which she was knowledgeable. She wrote that she would like to be

> *lawer; Doctor. . . . I feel quite prepared. My dad is a lawer and all my uncles are doctors so I know what it takes to become both of those.*

A male student from East School wrote he would like to be an

> *"engineer; some like my dad does."*

A male student from Rodeo School stated that both of his parents farmed and he aspired to

> *"Farming; working with agriculture."*
>
> *Very prepared because I going to be what my dad is.* (male student from Farm School reported his dad was a truck driver and a farmer and he wrote that he planned to be a *"trucker"* or mechanic)

Mitchell & Krumboltz (1990) discuss environmental factors that can affect career decision making. As proponents of social learning theory, they discuss how environmental factors such as the family and community can influence career choices.

> *Family training experiences and resources.* The family in which an individual is raised will communicate to each child certain values, demands, and expectations for achievement. The family's values and demands and the social and financial resources it is able to provide affect the individual's educational preferences, skill development, and occupational selections.
> *Neighborhood and community influences.* Communities differ in the kinds of occupational role models and cultural and social stimulation available to the people who live in them. (p. 150)

These influences cannot be undervalued. Their possible effect on the apparent differences in students' levels of occupational knowledge, aspirations, and feelings of preparedness should be given consideration. Baker (1985), like Mitchell and Krumboltz (1990), considers "the importance of the socioeconomic background of the adolescent's family in shaping occupational choices" (p. 101). She states that most adolescents are inclined to choose occupations similar to those of their parents or friends of their family. Situational approaches to career development, according to Herr and Cramer (1992), suggest that it is the social strata in which one is raised that influences career development. It would seem likely that the socioeconomic environment in which one is raised could be strongly correlated with parental influences.

> The socioeconomic structure of a society operates as a percolator and a filter of information. In essence, one's position among the social strata making up a nation has much to do with the kind of information one gets, the alternative actions one can take, and the kind of encouragement one receives. (p. 189)

The influence of parents on students' levels of occupational knowledge is not disputed. Tied to this is the family's socioeconomic status, the community in which they live, and other environmental factors. However, in discussing the influences on adolescents' level of occupational knowledge, another dimension must be considered. Lent, Brown, and Hackett (1994), in a review of social cognitive theory of career development, contend that feelings of self-efficacy can have a major impact on an individual's career development. How individuals perceive themselves, their abilities, their interests, and their likelihood of successful outcomes can have a major impact on what choices they make, what information they acquire, what goals they set, and so forth. Likely, the family and the community can play a large role in shaping an individual's feelings of self-efficacy. Rural/urban differences pertaining to self-image have been noted: "An individual's context of development has implications for both emotional and vocational development" (Sarigiani et al., 1990, p. 49). One of the difficulties in understanding the influence that the family and community have on adolescents is that "we have limited knowledge of how family processes and functioning affects adolescents' career development" (Fouad, 1994, p. 160).

The complex relationship between the numerous variables discussed, including students' families, socioeconomic status, environment, school location, urban/nonurban status, and feelings of self-efficacy, is as yet undetermined. How these variables interplay in adolescents' career development is not made clear in the findings of this study. Several researchers (Young & Collin, 1988; Brown, 1990; Fouad, 1994) suggest the use of qualitative studies to understand further the relationships among factors associated with adolescents' career maturity and levels of occupational knowledge.

Adolescent Optimism

No matter what the influences are on adolescents' levels of occupational knowledge, remarks written by students who participated in this study indicate that youth have a great deal of optimism and hold very high, perhaps unrealistic, expectations about their future.

> *I think I could do it if I had to I know what my dreams/goals are and I'm ready to achieve them any time.* (female student from Farm School)
>
> *I feel that I'm a really prepared to make decisions and plan for my future because I'm intelligent, individualistic, and have explored and researched all my areas (careers) of interest.* (female student from West School)
>
> *I feel prepared since I have had many jobs* (male student from Farm School)
>
> *I feel ready because I have known what I wanted to be since I was 8 years old* (male student from Dairy School, who aspired to be a marine biologist or writer [books])
>
> *I'm prepared.* (male student from North School)
>
> *As ready as I'll ever be.* (male student from North School)

> *I feel that I am well prepared to make decisions for myself involving my future because I have can get information about various jobs and I know what I'll be able to handle when I get older.* (male student from Rodeo School)

> *I am very prepared, everyone says I'm pretty mature with my decisions and I know that once I make it, it will be the right one.* (female student from Valley School)

> *very prepared—I learn quickly.* (male student from Farm School)

> *I'am prepared to do what ever I have to do, to do the job of my choice.* (male student from Rodeo School)

These responses reveal the confidence that many students have about the future and their ability to prepare for it. In addition, many of their responses suggest the unrealistic educational expectations that a great many of the students have. Of the students who participated in this study, 55% stated that they expected to graduate from university, and 22% indicated that they expected to complete vocational schooling. These findings replicate others (Posterski & Bibby, 1988; Bibby & Posterski, 1985, 1992), and they show the impractical thinking of many youth. One may question why such a large percentage of students stated that they intended to attend university. Perhaps some did not know the difference between university, colleges, and technical institutes, and their responses were a result of this. The fact that 77% of the Grade 9 students in this study indicated that they expected to complete some form of post-secondary training may also stem from the amount of information with which students have been confronted, which stresses the ever-increasing demand for education in the current labor market. Students hear that greater amounts of education are required in order to obtain a job, and they therefore assume that they will obtain a high amount of education.

Not only are many of the students' educational expectations likely unrealistic, a review of students' responses on the questionnaire show several examples of unclear perceptions and expectations. For example, one male student from East School stated that he wanted to *"own my own business; . . . work in a big company."* In order to own a business he stated he would require a *"machic degree."* He wrote that a business degree was required for his second choice, and yet he indicated that he expected to graduate from high school. A male student from North School wrote that he aspired to be a welder. (This was the same occupation that his father held.) He reported that in order to become a welder, he must graduate from high school. He also indicated that he expected to graduate from university. A female student from Rodeo School wrote that in order to achieve her aspiration of becoming an actress, she needed to *"Completed high school courses in Drama 10/20/30; experience."* To become a travel agent she would need *"high school diploma—a college diploma of that particular field."* And then she indicated that she expected to graduate from university. When asked how prepared she felt, she wrote, *"I feel good about how good I am about making decisions."*

This study focuses on the occupational knowledge of students in Grade 9 who were likely 14 or 15 years of age, and such unrealistic expectations are likely not uncommon, nor are they unexpected. However, the difficulty still lies in the fact that these students had made or were in the process of making plans for their high school programs. These programs will determine the later training and educational opportunities that will be available to them without further academic upgrading. The inability of many students to provide a general, cohesive description of their academic plans is not unexpected, yet it is worrisome given the significance of the decisions that they are making at this time.

Fouad (1994) writes that the developmental process may be such that "aspirations start high and then are shaped by the environment in some way as an adolescent encounters it" (p. 150); academic expectations may be one such example. However, she also maintains that "adolescents need to have aspirations tempered with realistic appraisal of abilities and interests, but unfortunately, that tempering also occurs because of discrimination, prejudice, and traditional gender-role views" (p. 150). One can only speculate whether these factors in any way affected, or will affect, the students in this study.

Concluding Observations

Several conclusions can be drawn from a discussion of the findings of this study. Students living in nonurban areas do not appear to be at a disadvantage with regard to their level of occupational knowledge. They do appear to know as much about jobs, including higher rated jobs, as those students from schools in higher urban SES areas do. Of concern are those students in urban areas who attend schools in lower SES areas. They appear to have significantly less occupational knowledge, and they feel less prepared to plan for a future job/occupation. As well, they, along with those students from nonurban areas, expect to obtain less education, and they aspire to lower rated occupations than do their urban counterparts from higher SES areas of the city. Why these differences exist is not answered in the results of this project. Differences in SES measured by parental occupation level may be one possible explanation; others are also provided.

The findings of this study generate more questions than they provide answers. For example, what role do parents and other role models play in students' levels of occupational knowledge and their aspirations for the future? Students in higher SES urban schools appear to have an advantage; however, is it just socioeconomic status that accounts for their apparently superior career-planning position? Nonurban/farm students know more about occupations in many ways than their urban/nonfarm peers do; they feel more prepared to plan for their future, and yet they aspire to and expect less. Is this apparent greater occupational knowledge the result of teachers' efforts to make up for the nonurban location by providing more instruction in this area, or are other factors involved? Are nonurban students' lower aspirations the result of their location? What other factors influence nonurban students' future career plans? The current study also fails to address the following questions: Does living in a nonurban location mean that one's career development and corresponding career maturity are significantly different from those of someone living in an urban location; and if so, does that, then, result in an economic, lifestyle, or other advantage in one's future career? Answers to such questions cannot be made on the basis of the quantitative findings from this study.

A discussion of the qualitative data stemming from students' responses to the questionnaire items supplies further information; however, this material does not necessarily answer the questions raised. Rather, this data provides another level of understanding on which to base further research. As described by Mitchell (1992), the thought patterns of adolescents are often distinctly different from those of children and adults. Identity issues and feelings of egocentrism and omnipotence work to further cloud the relationships among the variables addressed in this study.

As discussed previously, adolescents often have unrealistic expectations for their future, they are dealing with a wide variety of issues, and they may lack feelings of self-efficacy when considering future career possibilities. Adolescents generally lack experience with the world of work and the labor market, yet they are confronted with an increasing amount of information about changes in the marketplace and world of work. Studies of how prepared students are to face these changes and plan successfully for their place in the world of work are likely not answered by quantitative studies that isolate influential variables and consider large groups of subjects as being homogeneous in nature.

Although this study does find significant differences among the three groups of students, responses to questionnaire items continually show that the issues with which students are dealing are more alike than dissimilar, no matter their location, and that a variety of variables are influencing their thoughts and perceptions. Perhaps what is required is a new perspective on our perception of the adolescent period and the expectations that we place on youth during this stage of development. Jarvis (1991) emphasizes that the inability of youth to plan effectively for their future costs society enormously through social assistance and unemployment insurance. School drop-out training programs, student upgrading programs, and other such measures may be added costs. These do not compare with the possible costs to young people's self-esteem and the other personal, psychological, and social problems that may stem from their inability to find a place in the work world (Minister of State [Youth], 1984). Jarvis calls for more effective career guidance using the community to assist in providing adolescents with more and improved information which will enable them to plan for their future more effectively and successfully. Others (Otto, 1991; Jeffery et al., 1992) suggest that we focus on educating parents specifically, so that they may assist their adolescents in career planning. Perhaps the answer lies in these initiatives, or as Grub (1989) suggests, we could change the expectations we have for youth and schools. Schools, as institutions in our society, are slow to keep up with the pace of technological change, as Bibby and Posterski (1992) note:

> Employers, too, have expectations for schools. They want ready-made employees equipped for the rigors of the modern workplace. Yet, the pace of technological change that rules much of the workplace is far faster than institutions can ever hope to keep up with. (p. 228)

Therefore, Grub proposes that schools focus, not on training youth for a future place in the labor market, but rather, on providing youth with a well-rounded education which includes "more general skill training, purer forms of mathematics and science, and more powerful forms of thinking." Preparation for a specific place in the labor market would conceivably take place following schooling rather than using schools to prepare future workers and "mimic workplaces" (p. 40).

Whatever the answer, the fact remains that the place of schooling and retraining in our lives is changing (Grub, 1989). Many return to school to retrain long after they have initially entered the job market. We are entering an age of a new economy, where we will likely spend less time at work than ever before. The place of work in our lives is changing; the adolescents who took part in this study will likely change occupations several times over their working lifespan. Is it that important that adolescents make such major life decisions at a time in their lives when they are dealing with other issues? Adolescents are currently expected to plan for a future career when they know little about occupations. The career they choose may not demand their labor or even exist when they finally train for it. Youth are discovering who they are and what their abilities are, and they lack real work-world experience. The qualitative material from this study demonstrates that Grade 9 students are, in many ways, very unprepared to make important career decisions in a realistic fashion. The education system, however, expects them to do so, and those who fail to choose successfully cost our system economically. Perhaps this old system of career preparation will not remain in the future economy.

Whatever actions are taken in the future, the findings from this study suggest that, depending on their location, there are differences in students' basic understanding of occupations and their levels of occupational aspirations and educational expectations. It is unclear whether the lower aspirations and expectations expressed by nonurban students and by those attending schools in lower urban SES areas will, in the future, place these students at a disadvantage economically, socially, or personally. Initiatives taken to prepare youth for the future world of work must take these differences into consideration if they wish to provide students with an equal opportunity to plan for and be personally successful in a future career.

Significance of the Study

Theoretical Significance

A number of important elements arise from this study. A review of the literature, as presented in Chapter 2, clearly indicates the paucity of published Canadian research in the area of occupational knowledge and career maturity. The current study adds to this research field and provides information as to differences in the occupational knowledge, educational expectations, and occupational aspirations of a limited sample of urban and nonurban students in Alberta.

This study, it is hoped, will promote discussion of the entire career-planning process and the expectations that we place on adolescents. It highlights the need for further information in this area. Is the stress and importance that we place on the decisions that adolescents make in Grades 9 and 10 needed any longer? Those who speculate on and study future labor-market trends may need to reconsider the current roles that we expect youth, parents, and schools to play in preparing adolescents for future careers. Perhaps with the increasing need for the majority of workers to retrain at various points in their working career, the stress and importance placed on the academic and career decisions made during the adolescent years will lessen. If this is indeed the case, the roles that schools play in preparing students for work, may also be reconsidered.

The majority of research focusing on career maturity and occupational knowledge is quantitative. However, this study, and particularly the information presented in Chapter 5, encourages the use of and need for both quantitative and qualitative research in order to enable us to understand better the influences of the family, parental occupation level, and home location, among other variables, and their effect on students' level of occupational knowledge and career maturity. The current project may promote further discussion and research in these areas.

Practical Significance

The Health and Personal Life Skills curriculum, of which the Life Careers unit is a part, has been mandated for instruction across Alberta for the past eight years. No research was located by the researcher as to the effectiveness of this course and its content. Although this study in no way attempts to evaluate the effectiveness of this curricula, or portions thereof, it provides information as to students' level of occupational knowledge based on an urban/nonurban sample. Significant differences exist between the levels of occupational knowledge of urban and nonurban students, and between those of urban students attending schools in higher and those in lower SES areas. Students who live on farms also indicated significant differences when compared to their nonfarm peers. These findings may be used in further discussion of changes/revisions to the curriculum, and materials used in association with the instruction of the Life Careers unit.

The findings of this study can be used by teachers and parents. This study indicates that students' levels of occupational knowledge, educational expectations, and occupational aspirations, as well as their feelings of preparedness to plan for a future job/occupation, differ significantly by school location. The teaching manual and curriculum for the junior high Health and Personal Life Skills program do not address these differences specifically. Making students, parents, and teachers aware of the discrepancy in occupation-aspiration and education-expectation levels of urban and nonurban students may promote discussion and further investigation into these differences. Whether these discrepancies result in an occupational, educational, or economic disadvantage to one of the groups in the future should be considered.

Moreover, this study identifies some of the possible difficulties that students living in lower SES areas of an urban centre may face. Students from these school locations reported lower academic achievement, they received significantly lower occupational knowledge scores, and they reportedly felt less prepared to make decisions and plan for a future career. Again this provides information to educators, parents, and students that discrepancies do exist and must be addressed, either through a greater emphasis on the instruction of the unit by teachers, or through other school and/or community initiatives to increase students' knowledge level.

The results of this study also provide feedback to the participating teachers with regards to their students' performance on the measures of occupational knowledge in comparison to students from other school locations. The comments made by students, as well as their reported occupational aspirations, educational expectations, and feelings of preparedness, may give teachers further information as to students' beliefs and attitudes. This information may be used in their future planning of activities in the Life Careers unit. Furthermore, participating teachers may find it useful to review and compare their responses to the interview with those from other school locations. Such a review may provide them with ideas of other activities being used in the unit's instruction, as well as give them an indication of the amount of instructional time other teachers allocate to the unit.

Recommendations for Future Research

As exemplified in this study, quantitative research fails to provide a complete picture of the influences on students' participation in the career-development process. Very little research has been carried out that focuses on adolescent's thought processes in this stage of development, their beliefs, attitudes, and so forth. As Young and Collin (1988) maintain, previous approaches to the study of careers have "frequently failed to address the complexity that makes up career on the whole. Moreover, because of its narrow focus, research in the career field often lacks immediate meaning and usefulness for counsellors" (p. 153). As is apparent in this study, the complexity of the relationships between such variables as students' school location, their community, the influence by parents, their socioeconomic status, and their gender confuse our understanding of the study of adolescents' occupational knowledge. Young and Collin encourage the move to an ecological perspective when studying the influences on career development; they suggest a hermeneutic study. Brown (1990) agrees to the use of qualitative research:

> Since the turn of the twentieth century, thinking about career development and occupational choice has been influenced by logical positivism. While this position will probably remain at center stage in the near future, it seems likely that more and more theories will be articulated that either reflect some of the assumptions of phenomenology or are based solely on these assumptions. These perspectives will lead to an emphasis on qualitative methods of looking at career choice, career development, and the interrelationship among life roles. (pp. 516-517)

Survey and qualitative research (Larter et al., 1982; Bibby & Posterski, 1985, 1992; Baker, 1985; Canadian Teachers' Federation, 1990; Holmes & Silverman, 1992) have brought some important qualitative data to light. Our understanding of career development and the influences on students' level of occupational knowledge will increase with the use of qualitative studies (Fouad, 1994).

Included in qualitative studies should be an emphasis on the effects of the family, and other variables, such as adolescents' feelings of self-efficacy and self-esteem, and their effects on students' readiness for occupational knowledge. Longitudinal research looking at these variables may help us to understand how best to present occupational information and may result in changes to the expectations that we have for adolescents and their career preparations during their teen years when important decisions are expected to be made. Such studies may also provide information pertaining to the behavioral and attitudinal dimensions of career maturity.

Longitudinal research may also be used to address an issue of concern which stems from this study. Although no significant differences in occupational knowledge were found between urban and nonurban students, the lower occupational aspirations and educational expectations of nonurban students leads the researcher to question: Does living in a nonurban location mean that one's career development and corresponding career maturity are significantly different from that of someone living in an urban location; and if so, does that, then, result in an economic, lifestyle, or other advantage in one's future career? This same question may be asked of students attending schools in lower SES urban areas, as compared to those who attend schools in higher SES areas.

Canadian research is a necessity. For example, there appears to be little research as to the career development of aboriginal adolescents; none was found by this researcher in the current review of the literature. Perhaps the assumption is being made that this group of adolescents experience no differences in their progression through the career-development process. However, further research into aboriginal students' levels of occupational knowledge and influences on this may provide valuable information to community leaders and educators who work to keep this group of young people, in particular, in schools and prepare them for a future career.

The role of teachers and parents in adolescents' career decision making must also be considered. How aware are teachers and parents of the changes in the economy and in the technology of the future? This is a time of uncertainty and change for this group of individuals as well. Research as to their feelings, their plans, and their expectations may further help us to understand their influences on adolescents. This may provide valuable information which may assist in the delivery of information to these resource people, and as an end result, promote the career development of adolescents.

Although this study provides information as to students' level of occupational knowledge, the instrument used in this study was introduced in 1973 with no revisions made to the occupations on which students' knowledge is tested. The CVMT results from this study fail to address an issue of increasing concern; that is, it does not test adolescents' understanding and knowledge of the occupations that will reportedly require skilled workers in the future. Further study of adolescents' knowledge of jobs in the fields of artificial intelligence, biotechnology, and environmental science, for example, may provide educators with information as to students' understanding of and ability to prepare for these future fields of work.

> **I understand what is required for many different kinds of jobs but I don't understand myself well enough to know what jobs I can and would like to do.** (female student from South School)

References

Alberta Advanced Education and Career Development. (1993a). The school leavers survey: Summary of Alberta results from Statistics Canada's school leavers survey (1991). In *You can help: A school dropout information package* (June 1994). Edmonton, AB: Intergovernmental Task Force on Dropouts.

Alberta Advanced Education and Career Development. (1993b). *Understanding the labour market: A handbook for practitioners.* Edmonton, AB: Information Development and Marketing Branch of Alberta Advanced Education and Career Development.

Alberta Education. (1983). *Elementary health curriculum guide.* Edmonton, AB: Author.

Alberta Education. (1984). *Career development services for Alberta students.* Edmonton, AB: Special Educational Services Branch.

Alberta Education. (1986). *Health and personal life skills curriculum guide.* Edmonton, AB: Author.

Alberta Education. (1987, May). *Essential concepts, skills and attitudes for Grade 12: 2nd Draft.* Edmonton, AB: Author.

Alberta Education. (1993, September). *Program of studies: Junior high schools.* Edmonton, AB: Author.

Alberta Education. (1994). *Guide to Education: ECS to Grade 9 Handbook.* Edmonton, AB: Curriculum Standards Branch.

Alvi, S. A., & Khan, S. B. (1983). An investigation into the construct validity of Crites' career maturity model. *Journal of Vocational Behavior, 22,* 174-181.

American College Testing Program. (1974). *Assessment of career development.* Boston: Houghton Mifflin.

Apostal, R., & Bilden, J. (1991). Educational and occupational aspirations of rural high school students. *Journal of Career Development, 18,* 153-160.

Ary, D., Cheser Jacobs, L., & Razavieh, A. (1990). *Introduction to research in education* (4th ed.). Toronto: Holt, Rinehart & Winston.

Baker, M. (1985). *"What will tomorrow bring? . . ." A study of the aspirations of adolescent women.* Ottawa: Canadian Advisory Council on the Status of Women.

Barker, B. (1985). Curricular offerings in small and large high schools: How broad is the disparity? *Research in Rural Education, 3,* 35-38.

Bennett, S. (Ed.). (1990). *Technology and work in Canada.* Queenstown, ON: Edwin Mellen Press.

Berezowski, P. (1992). *Career maturity attitudes of boys and girls in Grades 6, 9, and 12.* Unpublished master's thesis, University of Manitoba, Winnipeg, MB.

Betz, N. (1988). The assessment of career development and maturity. In W. Walsh & S. Osipow (Eds.), *Career decision making* (pp. 77-136). Hillsdale, NJ: Erlbaum.

Bibby, R. W., & Posterski, D. C. (1985). *The emerging generation: An inside look at Canada's teenagers.* Toronto: Irwin.

Bibby, R. W., & Posterski, D. C. (1992). *Teen trends: A nation in motion.* Toronto: Stoddart.

Borgen, W., & Young, R. (1982). Career perceptions of children and adolescents. *Journal of Vocational Behavior, 21,* 37-49.

Borow, H. (1982). Career development theory and instrumental outcomes of career guidance: a critique. In J. Krumboltz & D. Hamel (Eds.), *Assessing career development* (pp. 18-38). Palo Alto, CA: Mayfield.

Brown, D. (1990). Issues and trends in career development: Theory and practice. In D. Brown, L. Brooks, & Associates (Eds.), *Career choice and development* (2nd ed.) (pp. 506-517). San Francisco: Jossey-Bass.

Burton, L. (1990). Labour force readiness for technological change and emerging world competitiveness. In S. Bennett (Ed.), *Technology and work in Canada* (pp. 281-294). Queenstown, ON: Edwin Mellen Press.

Canadian Teachers' Federation. (1990). *A capella: A report on the realities, concerns, expectations, and barriers experienced by adolescent women in Canada.* Ottawa: Canadian Teachers' Federation.

Chartrand, J. M., & Camp, C. C. (1991). Advances in the measurement of career development constructs: A 20-year review. *Journal of Vocational Behavior, 39,* 1-39.

Cobb, R. A., McIntire, W. G., & Pratt, P. A. (1989). Vocational and educational aspirations of high school students: A problem for rural America. *Research in Rural Education, 6,* 11-16.

Crites, J. (1973). *Career maturity inventory: Administration and use manual.* Monterey, CA: McGraw-Hill.

Crites, J. (1974). Career development processes: A model of vocational maturity. In E. L. Herr (Ed.), *Vocational guidance and human development* (pp. 296-320). Boston: Houghton Mifflin.

Elliott, J. (1987). *Rural students at risk.* Iowa City, IA: Iowa University. (ERIC Document Reproduction Service No. ED 285 708)

Erikson, E. H. (1963). *Childhood and society* (2nd ed.). Toronto: George J. McLeod.

Fadale, L. (1975). Assessment of career awareness of elementary school children. *Journal of Career Education, 1,* 80-86.

Fouad, N. A. (1994). Annual review 1991-1993: Vocational choice, decision-making, assessment, and intervention. *Journal of Vocational Behavior, 45,* 125-176.

Globa, E., & Sotas, W. (1993). Career education for the middle-years student. *Manitoba Journal of Counselling, 19,* 8-11.

Gribbons, W., & Lohnes, P. (1982). *Careers in theory and experience: A twenty-year longitudinal study.* Albany: State University of New York Press.

Grotevant, H., Cooper, C., & Kramer, K. (1986). Exploration as a predictor of congruence in adolescents' career choices. *Journal of Vocational Behavior, 29,* 201-215.

Grotevant, H., & Durrett, M. (1980). Occupational knowledge and career development in adolescence. *Journal of Vocational Behavior, 17,* 171-182.

Grub, W. (1989). Preparing youth for work: The dilemmas of education and training programs. In D. Stern & D. Eichorn (Eds.), *Adolescence and work: influences of social structure, labor markets, and culture* (pp. 13-45). Hillsdale, NJ: Lawrence Erlbaum.

Guttman, M. (1991). Issues in the career development of adolescent females: Implications for educational and guidance practices. *Guidance and Counselling, 6,* 59-74.

Hannah, J., & Kahn, S. (1989). The relationship of socioeconomic status and gender to the occupational choices of Grade 12 students. *Journal of Vocational Behavior, 34,* 161-178.

Harris, T., & Wallin, J. (1978). Influencing career choices of seventh-grade students. *The Vocational Guidance Quarterly, 27,* 50-54.

Havighurst, R. (1953). *Human development and education.* Toronto: Longmans, Green.

Heinz, W. R. (1987). The transition from school to work in crisis: Coping with threatening unemployment. *Journal of Adolescent Research, 2,* 127-141.

Herr, E. L., & Cramer, S. H. (1992). *Career guidance and counseling through the life span* (4th ed.). New York: HarperCollins.

Herr, E. L., & Enderlein, T. (1976). Vocational maturity: The effects of school, grade, curriculum, and sex. *Journal of Vocational Behavior, 8,* 227-238.

Hewlett, B. (1991). Career awareness survey at MacDonald Elementary School. *B.C. Counsellor, 13,* 14-20.

Holmes, J., & Silverman, E. L. (1992). *We're here, listen to us! A survey of young women in Canada.* Ottawa: Canadian Advisory Council on the Status of Women.

Holms, V., & Esses, L. (1988). Factors influencing Canadian high school girls' career motivation. *Psychology of Women Quarterly, 12,* 313-328.

Howell, F. (1978). Occupational knowledge: Its impact on career plans and early status attainment. *Sociology of Work and Occupations, 5,* 315-339.

Jarvis, P. (1991). Career planning: Developing the nation's primary resource. *Guidance and Counselling, 6,* 48-58.

Jeffery, G., Lehr, R., Hache, G., & Campbell, M. (1992). Empowering rural parents to support youth career development: An interim report. *Canadian Journal of Counselling, 26,* 240-255.

Jordaan, J.P. (1974) Life stages as organizing modes of career development. In E. Herr (Ed.), *Vocational guidance and human development* (263-295). Boston: Houghton Mifflin.

Jordaan, J. P., & Heyde, M. B. (1979). *Vocational maturity during the high school years.* New York: Teachers College Press.

Jyung, C., & Miller, L. (1990). *Predictors of students' career maturity in central Ohio high schools.* Columbus: Central Ohio State University, Departmental of Agricultural Education. (ERIC Document Reproduction Service No. ED 322 369)

Kammer, P. (1985). Career and life-style expectations of rural eighth-grade students. *The School Counselor, 33,* 18-25.

Kelly, K. (1992). Career maturity of young gifted adolescents: A replication study. *Journal for the Education of the Gifted, 16,* 36-45.

Kelly, K., & Cobb, S. (1991). A profile of the career development characteristics of young gifted adolescents: Examining gender and multicultural differences. *Roeper Review, 13,* 202-206.

Kelly, K., & Colangelo, N. (1990). Effects of academic ability and gender on career development. *Journal for the Education of the Gifted, 13,* 168-175.

Khan, S. B., & Alvi, S. A. (1983). Educational, social, and psychological correlates of vocational maturity. *Journal of Vocational Behavior, 22,* 357-364.

Khan, S. B., & Alvi, S. A. (1984). Assessment of career skills at the high school level. *Canadian Counsellor, 19,* 22-27.

Koppel, R., & DelRoccili, J. (1982). Urban education and student prospects: Policy implications. *Urban Education, 16,* 449-463.

Krumboltz, J. D., & Hamel, D. A. (Eds.). (1982). *Assessing career development* (pp. 278-279). Palo Alto, CA: Mayfield.

Larter, S., Cheng, M., Capps, S., & Lee, M. (1982). *Post secondary plans of grade eight students and related variables* (#165). Toronto: Board of Education. Research Service issued by the Research Department.

Laurikainen, J. (1986). *The career maturity and attitudes toward work of rural and urban Grade 12 students.* Unpublished master's thesis, University of Alberta, Edmonton.

Lawrence, W., & Brown, D. (1976). An investigation of intelligence, self-concept, socioeconomic status, race, and sex as predictors of career maturity. *Journal of Vocational Behavior, 9,* 43-52.

Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interests, choice, and performance [Monograph]. *Journal of Vocational Behavior, 45,* 79-122.

Lerner, R. M., & Galambos, N. L. (Eds.). (1984). *Experiencing adolescents: A sourcebook for parents, teachers, and teens.* New York: Garland.

Lewis, A., & Kuller, D. (1990). *Fast-track careers for the 90s.* London: Scott, Foresman.

McCracken, J. D., & Odell, K. S. (1988). Career aspirations of rural secondary students. *Journal of Vocational and Technical Education, 5,* 3-12.

McDaniels, C. (1989). *The changing workplace.* San Francisco: Jossey-Bass.

McDonald, J. L., & Jessell, J. C. (1992). Influence of selected variables on occupational attitudes and perceived occupational abilities of young adolescents. *Journal of Career Development, 18,* 239-250.

McKenna, A. E., & Ferrero, G. W. (1991). Ninth-grade students' attitudes toward nontraditional occupations. *The Career Development Quarterly, 40,* 168-181.

McNulty, W. B., & Borgen, W. A. (1988). Career expectations and aspirations of adolescents. *Journal of Vocational Behavior, 33,* 217-224.

Minister of State (Youth). (1984). *Focus on youth.* Hull, PQ: Public Affairs Branch, Employment and Immigration Canada.

Mitchell, J. J. (1992). *Adolescent struggle for selfhood and identity.* Calgary, AB: Detselig.

Mitchell, L. K., & Krumboltz, J. D. (1990). Social learning approach to career decision making: Krumboltz theory. In D. Brown, L. Brooks, & Associates (Eds.), *Career choice and development: Applying contemporary theories to practice* (2nd ed.) (pp. 145-196). San Francisco: Jossey-Bass.

Neufeld, J. (1992). A comparison of rural and urban Saskatchewan high school students attitudes towards work. *Guidelines, 27,* 21-29.

Neufeld, J., & Ferner, P. (1993). A survey of the expressed concerns of early adolescents. *Guidelines, 28,* 10-20.

Osipow, S. H. (1990). Convergence in theories of career choice and development: Review and prospect. *Journal of Vocational Behavior, 36,* 122-131.

Otto, L. B. (1991). "Today's youth and tomorrow's careers": A social psychological career development program. *Journal of Applied Sociology, 8,* 19-35.

Perlmutter Bloch, D. (1989). From career information to career knowledge: Self, search, and synthesis. *Journal of Career Development, 16,* 119-129.

Peterson, G. W., Rollins, B. C., Thomas, D. L., & Heaps, L. K. (1982). Social placement of adolescents: Sex-role influences on family decisions regarding the careers of youth. *Journal of Marriage and the Family, 44,* 647-658.

Pineo, P. C. (1985). *Revisions of the Pineo-Porter-McRoberts socioeconomic classification of occupations for the 1981 census.* QSEP Research Report No. 125. Hamilton, ON: McMaster University, Faculty of Social Sciences.

Posterski, D., & Bibby, R. (1988). *Canada's youth "ready for today": A comprehensive survey of 15-24 year olds.* Ottawa: Canadian Youth Foundation.

Randhawa, B., & Hunt, D. (1987). Sex and rural-urban differences in standardized achievement scores and mathematics subskills. *Canadian Journal of Education, 12,* 137-151.

Rich, N. (1979). Occupational knowledge: To what extent is rural youth handicapped? *The Vocational Guidance Quarterly, 27,* 320-325.

Saltiel, J. (1986). Segmental influence: The case of educational and occupational significant others. *Adolescence, 21,* 615-622.

Sandberg, D., Ehrhardt, A., Ince, S., & Meyer-Bahlburg, H. (1991). Gender differences in children's and adolescents' career aspirations: A follow-up study. *Journal of Adolescent Research, 6,* 371-386.

Sarigiani, P., Wilson, J., Petersen, A., & Vicary, J. (1990). Self-image and educational plans of adolescents from two contrasting communities. *Journal of Early Adolescence, 10,* 37-55.

Sharpe, D. (1992). Aspirations of youth: Job market reality versus the vocational career. *Canadian Vocational Journal, 27,* 6-10.

Smith, S. L. (1986). *Technology and work in Canada's future.* Toronto: Guidance Centre, University of Toronto.

Statistical package for the social sciences for Windows. (1993). Release 6.0 [Computer software].

Statistics Canada. (1981). *Standard occupational classification 1980.* Ottawa: Minister of Supply and Services Canada.

Statistics Canada. (1992). *Census divisions and census subdivisions.* Ottawa: Supply and Services Canada. 1991 Census of Canada. Catalogue #93-304.

Statistics Canada. (1993a). *Educational attainment and school attendance.* Ottawa: Industry, Science and Technology Canada. 1991 Census of Canada. Catalogue Number 93-328.

Statistics Canada. (1993b). *Labour force activity.* Ottawa: Industry, Science, and Technology Canada. 1991 Census of Canada. Catalogue number 93-324.

Statistics Canada. (1994). *Youth in Canada* (2nd ed.). Ottawa: Industry, Science, and Technology Canada. Catalogue number 89-511E.

Stein, W. (1977). *Rural community perspectives toward career development: A handbook for the assessment, communication, and expansion of rural adults career attitudes and values affecting youth.* Marquette, MI: School of Education Northern Michigan University. (ERIC Document Reproduction Service No. ED 142 765)

Stern, D. (1992). Institutions and incentives for developing work-related knowledge and skill. In P. Adler (Ed.), *Technology and the future of work* (pp. 149-186). New York: Oxford University Press.

Stern, D., & Eichorn, D. (Eds.). (1989). *Adolescence and work: Influences of social structure, labor markets, and culture.* Hillsdale, NJ: Lawrence Erlbaum.

Stewart, B. (1985). Career development services for Alberta students. *The Alberta Counsellor, 13,* 8-12.

Super, D. E. (1955). Dimensions and measurement of vocational maturity. *Teachers College Record, 57,* 151-163.

Super, D. E. (1963). Vocational development in adolescence and early adulthood: Tasks and behaviors. In D. Super, R. Starishevsky, N. Matlin, & J. P. Jordaan, *Career development: Self-concept theory,* Research Monograph No. 4 (pp. 79-95). New York: College Entrance Examination Board.

Super, D. E. (Ed.). (1974). Retrospect, circumspect, and prospect. In *Measuring vocational maturity for counseling and evaluation.* Washington, DC: National Vocational Guidance Association.

Super, D. E. (1980). A life-span, life-space approach to career development. *Journal of Vocational Behavior, 16,* 282-298.

Super, D. E. (1984). Career and life development. In D. Brown, L. Brooks, & Associates, *Career choice and development* (pp. 192-234). San Francisco: Jossey-Bass.

Super, D. E. (1990). A life-span, life-space approach to career development. In D. Brown, L. Brooks, & Associates, *Career choice and development: Applying contemporary theories to practice* (2nd ed.) (pp. 197-261). San Francisco: Jossey-Bass.

Super, D. E., Crites, J. O., Hummel, R. C., Moser, H. P., Overstreet, P. L., & Warnath, C. F. (1957). *Vocational development: A framework for research.* New York: Teachers College, Columbia University.

Super, D. E., & Nevill, D. D. (1984). Work role salience as a determinant of career maturity in high school students. *Journal of Vocational Behavior, 25,* 30-44.

Super, D. E., & Overstreet, P. L. (1960). *The vocational maturity of ninth-grade boys.* New York: Teachers College, Columbia University.

Taylor, M. (1985). The roles of occupational knowledge and vocational self-concept crystallization in students' school-to-work transition. *Journal of Counselling Psychology, 32,* 539-550.

Thompson, A. S., & Lindeman, R. H. (1981). *Career development inventory: Vol. 1: User's manual.* Palo Alto, CA: Consulting Psychologists Press.

Vangelisti, A. L. (1988). Adolescent socialization into the workplace: A synthesis and critique of current literature. *Youth and Society, 19,* 460-484.

Vondracek, F. W. (1993). Promoting vocational development in early adolescence. In R. M. Lerner (Ed.), *Early adolescence perspectives on research, policy, and intervention* (pp. 277-292). Hillsdale, NJ: Erlbaum.

Vondracek, F., & Schulenberg, J. (1984). Adolescence and careers. In R. M. Lerner & N. L. Galambos (Eds.), *Experiencing adolescents: A sourcebook for parents, teachers, and teens* (pp. 317-359). New York: Garland.

Wehrly, B. (1973). Children's occupational knowledge. *Vocational Guidance Quarterly, 22,* 124-129.

Westbrook, B. W. (1974). Content analysis of six career development tests. *Measurement and Evaluation in Guidance, 7,* 172-180.

Westbrook, B. W. (1976). Interrelationship of career choice competencies and career choice attitudes of ninth-grade pupils: Testing hypotheses derived from Crites' model of career maturity. *Journal of Vocational Behavior, 8,* 1-12.

Westbrook, B. W. (1982) Construct validation of career maturity measures. In J. Krumboltz & D. Hamel (Eds.), *Assessing career development* (pp. 66-112). Palo Alto, CA: Mayfield.

Westbrook, B. W. (1983). Career maturity: the concept, the instruments, and the research. In W. Walsh and S. Osipow (Eds.), *Handbook of Vocational Psychology* (Vol. 1). (pp. 263-303). Hillsdale, NJ: Lawrence Erlbaum.

Westbrook, B., Cutts, C., Madison, S., & Arcia, M. (1980). The validity of the Crites model of career maturity. *Journal of Vocational Behavior, 16,* 249-281.

Westbrook, B. W., & Mastie, M. M. (1974). The cognitive vocational maturity test. In D. E. Super (Ed.), *Measuring vocational maturity for counseling and evaluation* (pp. 41-50). Washington, DC: National Vocational Guidance Association.

Westbrook, B. W., & Parry-Hill, J. (1973). Cognitive Vocational Maturity Test (as described in *The construction and validation of a measure of vocational maturity)* (Center Technical Paper No. 16). Raleigh: North Carolina State University. (Educational Testing Service No. 001758)

Westbrook, B., & Sanford, E. (1993). Relation between self-appraisal and appropriateness of career choices of male and female adolescents. *Educational and Psychological Measurement, 53,* 291-299.

Westbrook, B., Sanford, E., O'Neal, P., Horne, D., Fleenor, J., & Garren, R. (1985). Predictive and construct validity of six experimental measures of career maturity. *Journal of Vocational Behavior, 27,* 338-355.

Willis, L. (1985). Career counselling with youth. *The Alberta Counsellor, 13,* 15-18.

Young, R. A. (1994). Helping adolescents with career development: The active role of parents. *The Career Development Quarterly, 42,* 195-203.

Young, R. A., & Collin, A. (1988). Career development and hermeneutical inquiry part I: The framework of a hermeneutical approach. *Canadian Journal of Counselling, 22,* 153-161.

APPENDIX A

COGNITIVE VOCATIONAL MATURITY TEST

DIRECTIONS

DO NOT PLACE YOUR NAME ON ANY OF THE MATERIALS GIVEN TO YOU

THIS IS A TEST OF YOUR KNOWLEDGE OF OCCUPATIONAL INFORMATION. YOUR RESULTS WILL BE COMPARED TO THOSE OF ANOTHER GRADE NINE STUDENT IN ALBERTA WHO ANSWERS THE QUESTIONNAIRE IN A SIMILAR WAY TO YOURS.

Your answer must be marked on the answer sheet which has been provided for you. Use only the special pencil that has been provided. DO NOT MAKE ANY STRAY MARKS! If you make an error, erase it completely before marking your new answer.

MAKE NO MARKS IN THE TEST BOOKLET.

The following is a sample question to show you how your answers are to be marked. For each question, color in the circle under the correct letter.

Sample Question	On Separate Answer Sheet
1. Which word means the same as begin?	A B C D E
A. Read B. End C. Start D. Work E. I don't know	1 ① ② ③ ④ ⑤

Pay close attention to the numbering on the answer sheet. After you have completed question 100, turn the page over and continue marking your answers.

FOR EACH QUESTION THERE IS ALWAYS ONE **BEST** ANSWER. YOU SHOULD ANSWER AS MANY QUESTIONS AS YOU CAN. DO NOT SPEND A GREAT AMOUNT OF TIME ON ANY ONE QUESTION.

COGNITIVE VOCATIONAL MATURITY TEST (WITH REVISIONS)

1. Which one of the following is NOT in the field of PUBLISHING?

   A. Editor
   B. Author
   C. Pianist
   D. Printer
   E. I don't know

2. Which one of the following occupations is in the field of AGRICULTURE?

   A. Farmer
   B. Hair Stylist
   C. Homemaker
   D. Carpenter
   E. I don't know

3. Which one of the following is NOT in the field of AGRICULTURE?

   A. Laborer
   B. Farmer
   C. Conservationist
   D. Physician
   E. I don't know

4. Which one of the following is NOT in the field of ART?

   A. Illustrator
   B. Typist
   C. Designer
   D. Sculptor
   E. I don't know

5. Which one of the following is NOT in the HOTEL INDUSTRY?

   A. Surveyor
   B. Caterer
   C. Bellhop
   D. Cashier
   E. I don't know

6. Which one of the following is NOT in the field of HEALTH?

   A. Therapist
   B. Physician
   C. Choreographer
   D. Nurse
   E. I don't know

7. Which one of the following occupations is found in the RESTAURANT INDUSTRY?

   A. Chef
   B. Librarian
   C. Machinist
   D. Statistician
   E. I don't know

8. Which one of the following is **NOT** in the field of AVIATION?

   A. Flight Engineer
   B. Copywriter
   C. Flight Attendant
   D. Navigator
   E. I don't know

9. Which one of the following is **NOT** in the field of TRANSPORTATION?

   A. Truck Driver
   B. Flight Attendant
   C. Mechanic
   D. Architect
   E. I don't know

10. Which one of the following occupations is in the area of LAW ENFORCEMENT?

    A. Accountant
    B. Stockbroker
    C. Firefighter
    D. Judge
    E. I don't know

11. Which one of the following is **NOT** in the field of PHARMACOLOGY?

    A. Compositor
    B. Bacteriologist
    C. Biologist
    D. Chemist
    E. I don't know

12. Which one of the following is **NOT** in the field of OFFICE WORK?

    A. Stenographer
    B. Accountant
    C. Bookkeeper
    D. Photographer
    E. I don't know

13. Which one of the following is **NOT** in the field of EDUCATION?

    A. Teacher
    B. Lawyer
    C. Counsellor
    D. Principal
    E. I don't know

14. Which one of the following is **NOT** in the field of CONSTRUCTION?

    A. Surveyor
    B. Architect
    C. Carpenter
    D. Mechanic
    E. I don't know

15. Which one of the following occupations is in the area of OCEANOGRAPHY?

    A. Marine Geologist
    B. Botanist
    C. Anthropologist
    D. Archeologist
    E. I don't know

16. Which one of the following is **NOT** in the field of PERSONNEL?

    A. Interviewer
    B. Veterinarian
    C. Personnel Clerk
    D. Psychologist
    E. I don't know

17 Which one of the following occupations is in the area of SALES?

    A. Insurance Broker
    B. Bank Clerk
    C. Psychologist
    D. Crane Operator
    E. I don't know

18. Which one of the following is **NOT** in the field of ENTERTAINMENT?

    A. Musician
    B. Therapist
    C. Choreographer
    D. Acrobat
    E. I don't know

19. Which one of the following is **NOT** in the field of COSMETOLOGY?

    A. Tailor
    B. Manicurist
    C. Stylist
    D. Pedicurist
    E. I don't know

20. Which one of the following occupations is a DRIVING OCCUPATION?

    A. Auto Mechanic
    B. Flame Cutter
    C. Routeperson
    D. Highway Surveyor
    E. I don't know

21. Kelly is shy and stays mostly alone rather than talking with others or entering into games and sports on the playground. Kelly usually goes home right after school and either reads or builds model airplanes. In class Kelly seldom volunteers to answer questions, but Kelly is one of the best students in the class. Which occupation would be best for Kelly?

    A. Engineer
    B. Actor/Actress
    C. Lawyer
    D. Salesperson
    E. I don't know

22. Jessie was an average student in high school but had a hard time in university, where Jessie had chosen economics as a major. Jessie worked part-time at a restaurant all through university and eventually became assistant to the manager. Jessie gets along well with other people and is a good talker. Jessie is now in one of the following occupations. Which one do you think seems the most likely one for Jessie to be in?

    A. High School Social Studies Teacher
    B. Frozen Food Company Salesperson
    C. Hotel Manager
    D. Restaurant Operator
    E. I don't know

23. Bobby had some vocational training in high school and worked hard to graduate. Bobby is physically strong and prefers outdoor work. Bobby is good at doing work that requires using one's hands, is dependable and cooperative. Bobby likes to be around other people and has a cheerful personality. Bobby is now in one of the following occupations. Which one seems to you to be the most likely one for Bobby to be in?

    A. Payroll Clerk
    B. Truck Driver
    C. Brickmason
    D. Security Officer - Night Shift
    E. I don't know

24. Terry did best in chemistry and biology in high school. Terry always showed a special understanding and affection for animals and as a child had pets of many kinds. Terry enjoys outdoor activities at all times of the year and keeps in good physical shape. Terry's university work included work in the physical and biological sciences, and after graduation Terry went on for the specialized professional training required for Terry's chosen field. Terry is now in one of the following occupations. Which one seems to you to be the most likely one for Terry to be in?

    A. Animal Trainer
    B. Veterinarian
    C. Hunting Guide
    D. Jockey
    E. I don't know

25. Robin likes people and has always been interested in the lives and customs of others. Robin is friendly and outgoing, but also a good listener. Robin did well in history and other social science courses in high school and majored in sociology in university. Robin joined an overseas aid and development program after graduation, before settling down in a particular job. Robin is now in one of the following occupations. Which one seems to you to be the most likely one for Robin to be in?

    A. College Professor
    B. Playground Director
    C. Social Worker
    D. Town Manager
    E. I don't know

26. Sandy was always considered to be cooperative and intelligent, and was well liked by fellow students. Sandy's grades in all subjects were above average, and although Sandy would like to work with young people, Sandy ruled out a teaching career. Sandy's friends have always found it easy to talk to Sandy about their problems, and they were not surprised when Sandy went to university to obtain a degree in Social Work. Sandy then did graduate work for certification in this chosen field of work. Sandy is now in one of the following occupations. Which one seems to you to be the most likely one for Sandy to be in?

    A. YMCA Director
    B. School Counsellor
    C. Police Chief
    D. Minister
    E. I don't know

27. Kim has about a "C" average in school. Kim enjoys being with others, and has joined several clubs in school. Last year Kim was chosen as the most popular student in the class. Which occupation would be the best one for Kim?

    A. Writer
    B. Salesperson
    C. Farmer
    D. Engineer
    E. I don't know

28. Francis has a good high school background in mathematics and science. Two of Francis' personal qualities are orderliness and liking for detail. Francis is a good manager and was elected president of several high school and university organizations. Francis had part-time summer jobs in a hospital laboratory. Francis has always hoped to someday own and manage a business. Graduation from an accredited specialized college is required for Francis' chosen occupation, and each province in the country requires a license to practice it. Francis is now in one of the following occupations. Which one seems to you to be the most likely one for Francis to be in?

    A. Accountant
    B. Pharmacist
    C. Pilot
    D. Lawyer
    E. I don't know

29. Jay graduated from a high school in a rural area. Jay was active in 4-H programs and especially enjoyed the home management and food processing projects. Jay was very capable at organizing and managing home economics club projects in high school. Jay's best grades were in chemistry, biology, and mathematics; Jay's poorest ones were in English. Jay went on to a four-year science program at university. Jay is now in one of the following occupations. Which one seems to you to be the most likely one for Jay to be in?

    A. Food Editor for a Newspaper
    B. Dietitian
    C. Elementary School Teacher
    D. Waiter/Waitress
    E. I don't know

30. Jean is the best athlete in the class, although Jean's grades are quite low. Jean doesn't like school very much but wants to be a "big businessperson" someday. Jean usually tries to tell the other students what to do and sometimes gets into fights with them. Which occupation would be the best one for Jean?

    A. Accountant
    B. Machinist
    C. Lumberjack
    D. Minister
    E. I don't know

31. Lonnie graduated from a high school where Lonnie was able to take several business courses. English was Lonnie's poorest subject, but the Dramatic Club was Lonnie's favorite outside activity. Lonnie is a poised and alert person who likes to be around other people. Lonnie is now in one of the following occupations. Which one seems to you to be the most likely one for Lonnie to be in?

    A. Mail Clerk
    B. Receptionist
    C. Stenographer
    D. Secretary
    E. I don't know

32. Ricky enjoys making things, and works in the family's wood shop whenever the chance arises. Also, Ricky likes to draw and has quite a collection of pictures. At school, Ricky ranks high in the class with the highest grades in mathematics and physics. Which occupation would be the best one for Ricky?

    A. Architect
    B. Artist
    C. Actor
    D. Carpenter
    E. I don't know

33. Pat grew up in the country and was always watching things grow. Pat liked to be out-of-doors and was happiest when hunting or fishing with or without a friend. Pat did average work in high school and then went to an agricultural college for two years. Pat is quiet and easy going, not very mechanically inclined, and has a lot of patience. Pat is now in one of the following occupations. Which one seems to you to be the most likely one for Pat to be in.?

    A. Soil Chemist
    B. Farm Implement Salesperson
    C. Greenhouse and Nursery Operator
    D. Supervisor in Tomato Packinghouse
    E. I don't know

34. Bernie was an above-average student in high school, active in extracurricular activities, and always in demand for organizing and directing student union projects. Bernie's university work was in accounting and economics, and Bernie went on to graduate school on a grant from Health and Welfare Canada. Bernie is active in sports, has a lot of vitality, and also has a special skill for public speaking. Bernie is now in one of the following occupations. Which one seems to you to be the most likely one for Bernie to be in?

    A. Medical Doctor
    B. Pharmacist
    C. Hospital Administrator
    D. Football Coach
    E. I don't know

35. Darcey dropped out of high school and worked as a mechanic's helper before deciding to go back to night school for a high school diploma. Darcey likes cars a lot and likes to travel around to see different places. Darcey is a dependable person and level-headed in emergencies. Darcey is now in one of the following occupations. Which one seems to you to be the most likely one for Darcey to be in?

    A. Garage Mechanic
    B. Police Officer
    C. Interprovincial Bus Driver
    D. Automobile Assemblyline Worker
    E. I don't know

36. Which of the following does NOT have to work with tools?

    A. Barber
    B. Mechanic
    C. Carpenter
    D. Milk Delivery Person
    E. I don't know

37. Which of the following spends the **MOST** amount of time at a desk?

    A. Police Officer
    B. Actress/Actor
    C. Carpenter
    D. Secretary
    E. I don't know

38. Which of the following spends the **LEAST** amount of time outdoors?

    A. Athlete
    B. Teacher
    C. Farmer
    D. Mail Carrier
    E. I don't know

39. Which of the following works **MOST** with groups of people?

    A. Teacher
    B. Mail Carrier
    C. Secretary
    D. Chemist
    E. I don't know

40. In which one of the following occupations do people work outdoors most frequently?

    A. Dressmaker
    B. Cashier
    C. Ski Instructor
    D. Cook
    E. Window Decorator

41. In which one of the following occupations do people work under the most dangerous conditions?

    A. Gardener
    B. Librarian
    C. Messenger
    D. Police Officer
    E. Butcher

42. Which one of the following works at home most frequently?

    A. Author
    B. Industrial Engineer
    C. Surveyor
    D. Poll Interviewer
    E. Cargo Boat Loader

43. In which one of the following occupations do people usually make the **MOST** money?

    A. Lawyer
    B. Librarian
    C. Automobile Mechanic
    D. Bank Teller
    E. Peddler

44. Which one of the following requires the **LEAST** knowledge of mathematics?

    A. Teacher
    B. Pilot
    C. Mail Carrier
    D. Store Clerk
    E. I don't know

45. Which of the following has to know the **MOST** about grammar?

    A. Surveyor
    B. Mechanic
    C. Secretary
    D. Engineer
    E. I don't know

46. Which of the following does the **LEAST** amount of walking?

    A. Milk Delivery Person
    B. Crane Operator
    C. Mail Carrier
    D. Police Officer
    E. I don't know

47. Which one of the following makes the **MOST** money?

    A. Hotel Front Office Clerk
    B. Hotel Bell Hop
    C. Hotel Manager
    D. Cook
    E. Maid

48. Which people are away from home most frequently?

    A. Farmers
    B. Teachers
    C. Commercial Pilots
    D. Police Officers
    E. Accountants

49. In which one of the following occupations do people usually make the **MOST** money?

    A. Law Clerk
    B. Psychotherapist
    C. Cashier
    D. Social Worker
    E. Security Guard - Night Shift

50. In which one of the following occupations do people usually make the **MOST** money?

    A. Farmer
    B. Dentist
    C. Mail Carrier
    D. Salesperson
    E. Nurse

51. In which one of the following occupations do people usually make the **MOST** money?

    A. Tool Maker
    B. Fisherman
    C. Personnel Worker
    D. Chemical Engineer
    E. Auto Mechanic

52. Which one of the following works late at night most frequently?

    A. Bank Clerk
    B. School Teacher
    C. Barber
    D. Newspaper Reporter
    E. Auto Mechanic

53. In which one of the following occupations do people usually make the **MOST** money?

A. Architect
B. Teacher
C. Forester
D. Toolmaker
E. Brickmason

54. In which one of the following occupations do people usually make the **MOST** money?

A. Fire Fighter
B. Chemist
C. Typist
D. Nurse
E. Butcher

55. In which one of the following occupations do people usually make the **MOST** money?

A. Optometrist
B. Office Equipment Service Person
C. Gardener
D. Construction Worker
E. Mail Carrier

56. Which one of the following occupations requires the **LEAST** education?

A. Typist
B. Instrument Maker
C. Wrapper
D. Advertising Copywriter
E. I don't know

57. Which one of the following occupations requires the **LEAST** training?

A. Athlete
B. Police Officer
C. Mechanic
D. Milk Delivery Person
E. I don't know

58. Which one of the following occupations requires the **MOST** education?

A. Barber
B. Mechanic
C. Laboratory Technician
D. Secretary
E. I don't know

59. Which one of the following occupations does **NOT** require special schooling?

A. Cab Driver
B. Nurse
C. Computer Programmer
D. Barber
E. I don't know

60. Which one of the following occupations requires special training?

A. Gardener
B. Electrician
C. Messenger
D. Construction Laborer
E. I don't know

61. A university education is **NOT** required to be a:

A. Chemist
B. Doctor
C. Architect
D. Carpenter
E. I don't know

62. A university education is usually required to be a:

A. Receptionist
B. Geologist
C. Actress/Actor
D. Copywriter
E. I don't know

63. Which one of the following occupations requires the **LEAST** training?

A. Hair Stylist
B. Mail Carrier
C. Secretary
D. Pilot
E. I don't know

64. Which one of the following occupations usually requires the **MOST** education?

A. Chemical Engineer
B. Teacher
C. Surveyor
D. Surgeon
E. I don't know

65. Which one of the following occupations does **NOT** require special schooling?

A. Cashier
B. Nurse
C. Barber
D. Flight Attendant
E. I don't know

66. Which one of the following occupations requires a university degree?

A. Oil Well Driller
B. Window Decorator
C. Police Officer
D. Landscape Architect
E. I don't know

67. Marine biologists usually have at least:

A. a university degree
B. a high school diploma
C. two years of high school
D. a grade school education
E. I don't know

68. Which one of the following requires the **LEAST** training?

A. Secretary
B. Carpenter
C. Mail Carrier
D. Hair Stylist
E. I don't know

69. Which one of the following occupations requires the **MOST** training?

A. Sales Clerk
B. Baker
C. Machinist
D. Telephone Operator
E. I don't know

70. Which one of the following occupations requires the **LEAST** education?

A. Elevator Repairperson
B. TV Repairperson
C. Cargo Boat Loader
D. Bookkeeper
E. I don't know

71. Which one of the following occupations does **NOT** require a university education?

    A. Choreographer
    B. Physicist
    C. Mathematician
    D. Psychiatrist
    E. I don't know

72. A university education is **NOT** required to be a:

    A. Chemist
    B. Architect
    C. Mechanic
    D. Agronomist
    E. I don't know

73. Which one of the following occupations is learned through on-the-job training?

    A. Civil Engineer
    B. Printing Press Operator
    C. Architect
    D. Pharmacist
    E. I don't know

74. Which one of the following occupations requires the **LEAST** education?

    A. Licensed Practical Nurse
    B. Registered Nurse
    C. Electrical Engineer
    D. Dentist
    E. I don't know

75. Which one of the following occupations requires the **LEAST** training?

    A. Astronaut
    B. Telephone Operator
    C. Doctor
    D. Hair Stylist
    E. I don't know

76. Experience as a kitchen helper is most useful for which one of the following occupations?

    A. Restaurant Cook
    B. Instrument Maker
    C. Gardener
    D. Nurse
    E. I don't know

77. Interest in helping others is essential for which one of the following occupations?

A. TV Repairperson
B. Nurse
C. Farmer
D. Data Processor
E. I don't know

78. Mechanical ability is most important in which one of the following occupations?

A. Typist
B. Paper Hanger
C. Electrician
D. Hairdresser
E. I don't know

79. Good taste in colors is essential for which one of the following occupations?

A. Sociologist
B. Surgeon
C. Interior Decorator
D. High School Teacher
E. I don't know

80. The skill of sewing is most useful for which one of the following occupations?

A. Nurse
B. Tailor
C. Surgeon
D. Interior Decorator
E. I don't know

81. Interest in reading and studying is most helpful in which one of the following occupations?

A. Historian
B. Dressmaker
C. Legal Clerk
D. Typesetter
E. I don't know

82. Interest in sports is essential for which one of the following occupations?

A. Anthropologist
B. Forester
C. Fisherman
D. Athletic Director
E. I don't know

83. The ability to speak and debate is essential in which one of the following occupations?

A. Concert Singer
B. Police Officer
C. Cab Driver
D. Lawyer
E. I don't know

84. Imagination is most important in which one of the following occupations?

A. Advertising Artist
B. Electrician
C. Social Worker
D. Librarian
E. I don't know

85. A person who has a fear of heights would **NOT** likely enter which one of the following occupations?

A. Telephone Lineperson
B. Dressmaker
C. Window Decorator
D. Carpenter
E. I don't know

86. The ability to express oneself in writing **is** essential in which one of the following occupations?

A. Civil Engineer
B. Actor/Actress
C. Secretary
D. Author
E. I don't know

87. A hobby of rock collecting and cave exploration is most useful for which one of the following occupations.

A. Biologist
B. Oil Well Driller
C. Geologist
D. Bricklayer
E. I don't know

88. Experience in 4-H clubs is most helpful for which one of the following occupations?

A. Lumberjack
B. Fisherman
C. Sales Clerk
D. Farmer
E. I don't know

89. Success in English composition is essential for which one of the following occupations?

A. Journalist
B. Playground Director
C. Aircraft Mechanic
D. Physical Therapist
E. I don't know

90. Physical strength is essential for which one of the following occupations?

A. Lumberjack
B. Heavy Equipment Operator
C. Messenger
D. Butcher
E. I don't know

91. Creativity is essential for which one of the following occupations?

A. Architect
B. Home Economist
C. Accountant
D. Statistician
E. I don't know

92. Experience as a paratrooper is most useful for which one of the following occupations?

A. Air Freight Delivery
B. Forest Fire Fighter
C. Truck Driver
D. Lumberjack
E. I don't know

93. The ability to work irregular hours is NOT important for which one of the following occupations?

A. Sales Clerk
B. Newspaper Reporter
C. Electrical Engineer
D. Mail Carrier
E. I don't know

94. Interest in human interaction is essential for which one of the following occupations?

A. Mechanical Engineer
B. Psychotherapist
C. Computer Programmer
D. Concert Singer
E. I don't know

95. Experience in preparing meals is most useful for which one of the following occupations?

    A. Waiter/Waitress
    B. Dishwasher
    C. Dietitian
    D. Bartender
    E. I don't know

96. What kind of work is usually done by a VETERINARIAN?

    A. Sells feed and grain
    B. Repairs farm machinery
    C. Works with retired soldiers
    D. Takes care of animals
    E. I don't know

97. A CARPENTER:

    A. finishes concrete surfaces
    B. constructs walls and chimneys from brick
    C. erects the wood framework in buildings
    D. covers pipes and boilers with insulation
    E. I don't know

98. Which one of the following would most likely assist people in making arrangements for an out-of-town trip?

    A. Flight Attendant
    B. Travel Agent
    C. Porter
    D. Usher
    E. I don't know

99. Which one of the following designs buildings?

    A. Mechanic
    B. Architect
    C. Surveyor
    D. Engineer
    E. I don't know

100. Which one of the following would engineer the structure of a spacecraft?

    A. Aeronautical Engineer
    B. Electrical Engineer
    C. Electronic Engineer
    D. Mechanical Engineer
    E. I don't know

101. Which one of the following would select paintings to fit the decor of a home?

A. Arranger
B. Choreographer
C. Interior Designer
D. Fashion Designer
E. I don't know

102. Which one of the following seats people at a theatre or auditorium?

A. Usher
B. Waiter/Waitress
C. Porter
D. Flight Attendant
E. I don't know

103. An INSURANCE AGENT:

A. sells policies which protect against future losses
B. makes property transactions
C. secures loans for repair of damaged property
D. reviews insurance applications to evaluate the degree of risk involved
E. I don't know

104. An ASTRONOMER:

A. studies the celestial bodies of the universe
B. analyzes the forms of energy and matter
C. predicts the future from the stars
D. makes rings, pins, and other jewelry by hand
E. I don't know

105. Which one of the following fills prescriptions for drugs and medicines?

A. Chemist
B. Physicist
C. Pharmacist
D. Pharmacologist
E. I don't know

106. Which one of the following is usually responsible for classifying and storing business documents?

A. Office Worker
B. File Clerk
C. Secretary
D. Typist
E. I don't know

107. Which one of the following makes metal printing plates?

A. Engraver
B. Assembler
C. Electronic Technician
D. Engineering Technician
E. I don't know

108. What kind of work does a SURVEYOR most likely do?

A. Sells stocks and bonds
B. Oversees workers in a factory
C. Determines property boundaries
D. Designs roads and highways
E. I don't know

109. A LANDSCAPE ARCHITECT:

A. raises and sells plants and shrubs
B. plans and designs the exterior of a building
C. draws city zoning maps
D. plans and designs the arrangement of outdoor areas
E. I don't know

110. What kind of work do you think a DIETITIAN most likely does?

A. Sterilizes instruments in a dental clinic
B. Supervises exercise and weight control at health clubs
C. Sells books on how to reduce
D. Plans menus and supervises preparation of meals
E. I don't know

111. Which one of the following advises people about legal claims or rights?

A. Judge
B. Accountant
C. Lawyer
D. Lecturer
E. I don't know

112. What kind of work is usually done by an ACCOUNTANT?

A. Collects money for bills
B. Sells stocks and bonds
C. Keeps business records
D. Writes descriptions of accidents
E. I don't know

113. A CHARTERED ACCOUNTANT:

A. makes decisions about the marketing of goods.
B. locates and hires employees.
C. shapes and maintains the public image of a business.
D. compiles and analyzes business records.
E. I don't know

114. A PHARMACIST:

A. helps persons with muscle, nerve, and bone diseases to overcome their disabilities.
B. diagnoses patients' illnesses and prescribes medicines.
C. dispenses drugs and medicines and provides information about their use.
D. examines the processes through which food is utilized.
E. I don't know

115. An Aviator:

A. repairs mechanical and electrical equipment on an airplane.
B. monitors the operation of mechanical and electrical equipment on an airplane.
C. schedules flights for passengers.
D. designs and builds airplanes.
E. I don't know

116. What does a NURSERY WORKER do?

A. Grows tobacco
B. Grows vegetables
C. Manages a kindergarten
D. Grows flowers
E. I don't know

117. An OPTOMETRIST:

A. diagnoses and treats diseases of the mind.
B. helps people improve their vision.
C. provides information on the use of drugs.
D. diagnoses and treats bone diseases.
E. I don't know

118. Which one of the following carries luggage in a hotel?

A. Usher
B. Waitress/Waiter
C. Caretaker
D. Porter
E. I don't know

119. Which one of the following handles payments and withdrawals in a bank?

A. Teller
B. Cashier
C. Bookkeeper
D. Currency Sorter
E. I don't know

120. A DATA PROCESSING EQUIPMENT SERVICE PERSON:

A. repairs and maintains traffic counters.
B. repairs and services dictating machines.
C. maintains and repairs duplicating machines.
D. installs and maintains computers.
E. I don't know

APPENDIX B

COPY OF STUDENT QUESTIONNAIRE WITH CODES AND CODING GUIDELINES ADDED

Thank you for taking part in this study. Enclosed you will find:

1. a questionnaire
2. a multiple-choice test and an answer sheet

*You are not to place your name on any of the materials—all of your answers are totally confidential.

DO NOT PLACE YOUR NAME ON ANY OF THE SHEETS

COPY OF STUDENT QUESTIONNAIRE WITH CODES AND CODING GUIDELINES ADDED

DO NOT PLACE YOUR NAME ON ANY OF THE SHEETS

PLEASE PLACE A CHECK MARK NEXT TO THE ANSWER THAT IS CORRECT FOR YOU.

1. ARE YOU: Male _____ (1)

Female _____ (2)

2. DO YOU LIVE IN A:

_____ City (1)

_____ Town (2)

_____ Village (3)

_____ Rural Area (IF YOU CHECKED HERE, ANSWER QUESTION 3) (4)

3. DO YOU LIVE ON A FARM?

_____ Yes (1) _____ No (2)

In GRADE 9 your report card marks in the following courses have been:

4. LANGUAGE ARTS

below 40% _____ (1)
40% - 60% _____ (2)
60%- 80% _____ (3)
80% and above _____ (4)

5. SOCIAL STUDIES

below 40% _____ (1)
40% - 60% _____ (2)
60%- 80% _____ (3)
80% and above _____ (4)

6. MATH

below 40% _____ (1)
40% - 60% _____ (2)
60%- 80% _____ (3)
80% and above _____ (4)

7. SCIENCE

below 40% _____ (1)
40% - 60% _____ (2)
60%- 80% _____ (3)
80% and above _____ (4)

8. LIST ALL THE JOBS/OCCUPATIONS YOU FEEL YOU KNOW A LOT ABOUT. FOR EXAMPLE, LIST THOSE JOBS/OCCUPATIONS FOR WHICH YOU KNOW THE TRAINING REQUIREMENTS, DUTIES, EDUCATION REQUIREMENTS, WORK CONDITIONS.

a. ______________________ e. ______________________

b. ______________________ f. ______________________

c. ______________________ g. ______________________

d. ______________________ h. ______________________

(Refer to p. 159 of Appendix B for codes used.)

9. a. What kind of work does your mother normally do? What is her job title?

____

b. What does the job involve? (Describe.) ______________________

____

c. What kind of business/organization does she work for? What does her employer do or make? ______________________

____

(Refer to p. 159 of Appendix B for codes used.)

*NOTE: IF THEY ARE UNEMPLOYED OR DISABLED, PLEASE STATE THIS AND ANSWER THE ABOVE QUESTIONS WHEN THEY ARE AT WORK.

10. a. What kind of work does your father normally do? What is his job title?

____

b. What does the job involve? (Describe.) ____________________

____

c. What kind of business/organization does he work for? What does his employer do or make? ____________________________

____

(Refer to p. 159 of Appendix B for codes used.)

*NOTE: IF THEY ARE UNEMPLOYED OR DISABLED, PLEASE STATE THIS AND ANSWER THE ABOVE QUESTIONS WHEN THEY ARE AT WORK.

11. EXPLAIN ALL THE ACTIVITIES YOU HAVE DONE IN GRADE 9 HEALTH CLASS AS PART OF THE LIFE CAREERS UNIT.

(Question not coded - Refer to Chapter 3 for explanation.)

12. CHECK THE CATEGORY THAT BEST DESCRIBES YOUR FAMILY.

(1) _____ My family makes less money than most other Grade 9 students' families in Alberta.

(2) _____ My family makes about the same amount of money as most other Grade 9 students' families in Alberta.

(3) _____ My family makes probably more money than most other Grade 9 students' families in Alberta.

13. YOUR TOTAL FAMILY INCOME PER YEAR, BASED ON THE INCOME OF THE ADULTS WHO LIVE IN YOUR HOME, WOULD BE:

(1) _____ LOWER INCOME (under $22,000 per year)

(2) _____ LOWER MIDDLE INCOME ($22,000 - $35,999 per year)

(3) _____ MIDDLE INCOME ($36,000 - $52,999 per year)

(4) _____ UPPER MIDDLE INCOME ($53,000 - $74,999 per year)

(5) _____ HIGH INCOME ($75,000 or more per year)

14. WHAT JOB(S) OR OCCUPATION(S)WOULD YOU LIKE TO HAVE WHEN YOU ARE AN ADULT?

A. ______________________________

(Refer to p. 159 of Appendix B for codes used.)

B. ______________________________

15. WHAT EDUCATION OR TRAINING WILL YOU HAVE TO COMPLETE IN ORDER TO BE QUALIFIED TO GO INTO THE JOB(S)/OCCUPATION(S) YOU STATED IN QUESTION 14? (PLEASE DESCRIBE.)

(1) Student provides 3 of the following: States high school requirements; provides a possible timeline; names type of educational/ training institution; lists courses that may be required.

A. ____________________

(2) Names type of educational/training institution; provides a possible timeline or courses that would be required

____

(3) States type of training/education institution or type of courses required

____

(4) No clear understanding of the education/training required

B. ____________________

(5) No answer/states "I don't know"

____

16. HOW MUCH EDUCATION DO YOU EXPECT TO GET?

(1) _____ Some high school

(2) _____ Graduate from high school

(3) _____ Some vocational schooling (for example, some courses at N.A.I.T., S.A.I.T., Olds College, Fairview College)

(4) _____ Complete vocational schooling (for example, get a diploma from N.A.I.T., S.A.I.T. , Olds College, Fairview College)

(5) _____ Some university

(6) _____ Graduate from university

17. HOW PREPARED DO YOU FEEL YOU ARE TO MAKE DECISIONS AND PLAN FOR A FUTURE JOB/OCCUPATION? (PLEASE EXPLAIN.)

(1) Response indicates that student feels he/she is prepared.

(2) Response indicates that student feels he/she is somewhat prepared.

(3) Response indicates that student feels he/she is not prepared.

Thank you for completing the questionnaire. Please turn the page and go on to the test.

CODES AND JOB CATEGORIES USED TO RATE STUDENTS' RESPONSES TO QUESTIONNAIRE ITEMS 8, 9, 10, 14

(Taken from: Pineo, P. C. *Revisions of the Pineo-Porter-McRoberts Socioeconomic Classification of Occupations for the 1981 Census* [QSEP Research Report No. 125]. Hamilton, ON: McMaster University, Faculty of Social Sciences.)

Each job title was given a code from the *Standard Occupational Classification 1980* (Statistics Canada, 1981) and the codes were placed in one of the following categories and given the corresponding code.

(0) No Response
(1) Farm Laborers
(2) Unskilled Manual
(3) Unskilled Clerical Sales and Service
(4) Semi Skilled Manual
(5) Semi Skilled Clerical Sales and Service
(6) Farmers
(7) Skilled Crafts and Trades
(8) Skilled Clerical Sales and Service
(9) Foremen and -Women
(10) Supervisors
(11) Middle Management
(12) Technicians
(13) Semi-Professionals
(14) High-Level Management
(15) Employed Professionals
(16) Self-Employed Professionals

APPENDIX C

SUMMARY OF RESPONSES TO INTERVIEW QUESTIONS

BY PARTICIPANTS' GRADE 9 HEALTH TEACHERS

The following career-related activities were highlighted by teachers in their description of activities carried out in fulfillment of/or in association with the Life Careers unit.

	School							
Activities	Dairy	Diam.	Valley	Farm	North	South	East	West
Number of classes spent on instruction	40 40-min.	7-8 41-min.	8 40-min.	20-28 40-min.		2* 40-min.	3 50-min.	8-12 50-min.
No specific instruction					X			X1C
Attended career fair					X	X		
High school registration & associated activities introduced	X	X	X	X	X	X	X	X
School career day								X2C
Used suggested/required texts and/or other print material associated with unit topics	X	X	X	X	X	X		X2C
Used audiovisual resources associated with unit topics	X	X				X		
Computer or print programs matching interests and occupations			X	X2C		X		
Discussion or activities on job-finding skills	X	X	X				X	X2C
Self-assessment activities	X	X	X	X		X		X
Activities or discussion on planning for the future	X	X	X	X	X	X	X	X
Activities related to the study of post-secondary institutions		X	X	X				
Career search/ investigation	X			X2C		X		

Activities	School Dairy	 Diam.	 Valley	 Farm	 North	 South	 East	 West
Number of classes spent on instruction	40 40-min.	7-9 41-min.	8 40-min.	20-28 40-min.		2* 40-min.	3 50-min.	6-12 50-min.
Project Business-Junior Achievement Program								X
Service Program					X			
Receive a grade for Life Careers unit	X	X		X	NA	X		X

Notes:

1. The health teacher at Rodeo School did not respond to my requests for information about the instruction of the Life Careers unit.

2. Teachers at West and East School used the approved health curriculum guide that reflected the separate-school status of their district.

3. At Diamond School the Grade 9 students were part of a split Grade 8/9 class. The majority of the students had received instruction in the Grade 9 Life Careers unit last year while in Grade 8; however, the year they participated in the study, they had received instruction in the Grade 8 Life Careers unit.

* Although this teacher indicated that the class had received only 80 minutes of instruction, in discussion it appeared that the class had spent considerably more time on materials and activities related to the unit.

1C/2C At Farm School, North School, East School, and West School, more than one teacher was responsible for the instruction of the Life Careers unit to the classes of students. 1C (one class) and 2C (two classes) denote the number of classes that completed the activity.

NA Students had not yet received instruction in the Life Careers unit at North School at the time of data collection; however, a comparison of the scores of North School with those of East School reveal no significant difference in the scores, and they had completed some of the activities related to the unit ($p < .05$). The health teachers were not individually interviewed at North School because they had not begun the instruction of the Life Careers unit. Therefore, a response for this activity was not known.

APPENDIX D

OUTLINE OF POINTS MADE DURING THE ADMINISTRATION OF DEMOGRAPHIC DATA QUESTIONNAIRE AND CVMT

Introduce myself and state that I am a former teacher, a school counsellor, and currently a student at the University of Alberta.

Thank students for taking part in the study. Remind them they took home parental permission/information forms explaining the study. State that at any time they decide not to take part in completing any of the activities, they are able to do so. They do not have to answer all or any of the questions on either parts of the study.

Point out that there are two parts—a test and a questionnaire. How they answer the questionnaire will help me to match them with another student in Alberta. I wish to compare how much they know about jobs with other students from rural/urban schools in Alberta.

Ask them to choose two numbers between 1 and 100 and write these numbers on their computer-scored answer sheet and their questionnaire. Remind them not to write their name on any of the sheets.

Briefly read through the questions of the questionnaire. Ask them to answer as completely as possible. If parents are divorced, respond with the appropriate information from the parent they live with most of the time.

Go through the computer score sheet and how to record responses.

Encourage them to choose the "I don't know" response if unsure about an answer.

Thank them again for their participation.

Ask if any questions, and tell them to raise hand if have questions while completing assessment, and I will attempt to help them. Remind them that I will stay after class if they have other questions.

While writing, check that students have recorded the same number on both sets of material so I can match later.

Ask students who finish early to check that they have not missed any questions that they had intended on answering, then ask them to read or complete other work while others finish.

APPENDIX E

COPY OF PROJECT ADMINISTRATION GUIDELINES GIVEN TO SUPERVISING TEACHERS AT NORTH SCHOOL AND EAST SCHOOL

Thank you for helping to collect data for this research project. You should have been given pencils for students to answer the test questions, as well as a packet for each student containing:

a title page
a questionnaire
a computer score answer sheet
a copy of the test

Please distribute these to each student. *Students who have returned a signed form from their parent/guardian are not to take part in the study.

Directions for Administration

1. Thank students for participating in this research study, which is an attempt to determine if there is a difference in how much urban and rural Grade 9 students know about jobs.

2. They each receive a package consisting of a title page, a questionnaire, a computer-scored answer sheet, and a multiple-choice test. The information they provide on the questionnaire will be used to match each of them with a student in a rural part of Alberta. Their test scores will be compared to see if there is a difference in how much they know about jobs.

3. They are not to put their name on any of the material. In order to keep track of which score sheet matches which questionnaire, ask them to choose any number between 1 and 1000 and write it on the top of the computer score answer sheet where it says "NAME." This is the only identifying information they need to put on that sheet. Ask them to copy the same number onto the top of their questionnaire. They are to put no marks on the test.

4. Briefly read through the questions on the questionnaire. Ask them to answer as completely as possible. If students' parents are divorced, ask them to respond with the information from the parent they live with most of the time.

5. Have them refer to the computer-scored answer sheet. When answering the test questions, they are to fill in the circle of the correct response. They answer the last 20 questions on the back of the sheet. Ask students not to guess; if they are unsure of a response, encourage them to choose the "I don't know" response when it is an option.

6. Please thank students for taking part in the study. Remind them that they took home parental permission/information forms explaining the study. Although I hope they participate and provide me with as much information as possible, they do not have to answer all or any of the questions on either part of the study.

7. Please notify students that I will be available after class, should they have any questions about the study in which they are participating.

8. Have students return the entire packet of information and any borrowed pencils.

(As students write, please go around and make sure that each student has written the same number on their computer answer sheet and questionnaire.)

THANK YOU FOR YOUR HELP!!

Lisa Dundas

APPENDIX F

COPY OF TEXT OF LETTER MAILED TO PARTICIPATING HEALTH AND PERSONAL LIFE SKILLS TEACHERS

I am currently on leave from a school counsellor position with the County of Lac Ste. Anne in order to complete a Master's Degree in Educational Psychology at the University of Alberta. As part of my program requirements, under the supervision of Dr. Gretchen Hess, I am conducting a research study into possible differences between urban and nonurban Alberta Grade 9 students' level of occupational knowledge. Your school board has granted me permission to include the Grade 9 students from your Health and Personal Life Skills classes as part of my research sample. I will be administering a demographic data questionnaire and the Cognitive Vocational Maturity Test, which consists of 120 multiple-choice items, to Grade 9 students in your school prior to completion of this school year. Testing time is approximately 80 minutes in length; however, depending on the schools' schedules, I can adapt this to one or two testing sessions. I have also received permission to speak to you, the students' Health and Personal Life Skills teacher, in order to obtain a description of the activities carried out and the resources used in the Life Careers Unit of the Health and Personal Life Skills Curriculum. This information will be described in the final report in order to exemplify the fact that all students who participate in the study have received instruction in the Life Careers unit.

As students are not required to place their names on any of the materials, total confidentiality of student responses will be maintained. As well, please be assured that my intention is in no way to compare the quality of programs in any of the areas in which I will be testing. I will refer to your school district and students' results by a label such as "School District A" on all materials. The information you provide me with will also be under such a heading. My interest in this study is to determine if, on this particular test, after accounting for other variables, students in urban and nonurban areas score differently.

Please note that you are under no obligation to take part in an interview. If you do decide to allow me to ask you questions concerning the Life Careers unit, and then decide at a later date that you do not wish me to report this information in my final report, I will return all notes I have made to you and delete that information from the thesis.

I have enclosed a sample list of questions I hope to ask you in a brief interview. If you would like further information prior to agreeing to take part in the interview, please do not hesitate to call me at my home (481-0571) or the University (492-5245). You may also contact Dr. Hess at the University (492-1155). I would welcome the opportunity to discuss the results of this study and provide you with feedback as to the performance of your students, following the completion of my thesis. I look forward to meeting with you in the near future to discuss a possible date for testing.

Yours truly,

Lisa Dundas B.A. B.Ed.

Dr. Gretchen Hess, Ph.D.
Associate Professor, University of Alberta

APPENDIX G

SAMPLE QUESTIONS ASKED OF HEALTH AND PERSONAL LIFE SKILLS TEACHERS

In relation to the Grade 9 Health and Personal Life Skills Life Careers unit:

1. How many hours of instruction were needed to complete the unit?
2. What text books were used in the instruction of the unit?
3. Could you supply a copy of your course outline?
4. What audiovisual material or other print materials were used in the instruction of the unit?
5. Did you employ guest speakers in the instruction of the unit? If so, what were their credentials, and on what topics did they speak?
6. Did students complete any print or computer-based interest or career guidance assessment activities? If so, please describe.
7. Please list and describe the activities students participated in, in the course of this unit.
8. Please describe the assignments students completed during the course of this unit.
9. What percentage of students' total class mark do these assignments account for?

APPENDIX H

COPY OF TEXT OF LETTER MAILED TO SCHOOL BOARDS

Date

School District Representative:

I am currently on leave from a school counsellor position with the County of Lac Ste. Anne in order to complete a Master's Degree in Educational Psychology at the University of Alberta. As part of my program requirements, under the supervision of Dr. Gretchen Hess, I am conducting a research study into possible differences between urban and nonurban Alberta Grade 9 students' level of occupational knowledge. I am writing this letter to request permission to include Grade 9 students from your school district as part of the research sample. My intention is to administer a short demographic data questionnaire and the Cognitive Vocational Maturity Test, which consists of 120 multiple-choice items, to a group of 50-100 Grade 9 students in your school district prior to completion of this school year. Testing time is approximately 80 minutes in length; however, depending on the schools' schedules, I can adapt this to one or two testing sessions. I would appreciate being allowed to test students in their regular classes. As well, I ask permission to speak to the students' Health and Personal Life Skills teachers in order to obtain a description of the activities carried out and the resources used in the instruction of the Life Careers unit of the Health and Personal Life Skills Curriculum. This information will be described in the final report in order to exemplify the fact that all students who participate in the study have received instruction in the Life Careers unit.

Research in the area of career maturity and career decision making concludes that such variables as a student's level of socioeconomic status, exposure to occupations, gender, and achievement level can affect their degree of occupational knowledge. Students are asked to supply information on these topics on the demographic data questionnaire. In order to begin to determine that it is indeed students' location that could possibly account for any differences in knowledge, students in urban and nonurban areas will be matched on the basis of the information from the demographic data questionnaire, and their test scores will then be compared.

As students are not required to place their names on any of the materials, total confidentiality of student responses and information will be maintained. As well, please be assured that my intention is in no way to compare the quality of programs in any of the areas in which I will be testing. I will refer to your school district and students' results by a label such as "School District A" on all materials. My interest in this study is to determine if, on this particular test, after accounting for other variables, students in urban and nonurban areas score differently.

For your approval, I have enclosed a copy of the demographic data questionnaire, a parental information/permission form, and a sample list of questions to be asked of the students' health teachers. Please note that I am open to making revisions to them should you have concerns. If you require a copy of my research proposal or would like further information prior to approval, please do not hesitate to call me at my home (481-0571) or the University (492-5245). You may also contact Dr. Hess at the University (492-1155). I look forward to hearing from you in the near future.

Yours truly,

Lisa Dundas B.A., B.Ed. Gretchen C. Hess, Ph.D.

APPENDIX I

COPY OF PARENTAL INFORMATION/PERMISSION FORM

DATE

Dear Parent or Guardian,

I am conducting a research study to find out if Grade 9 students from urban areas and nonurban areas score differently on a test of their knowledge about jobs. This letter is to inform you that your son/daughter has been selected to take part in this study. Your child will complete a questionnaire and write a 120-item multiple-choice test. The questionnaire will ask your child such questions as whether they live in an urban or rural area, what range of grades they have received in Grade 9, what occupations their parents have, and what type of job they would like to do when they finish high school. The test will cover such areas as the duties and work conditions of different jobs and the education and attributes required to do different jobs. Students will not have to write their names on any of the materials, and therefore, all their answers and test scores will be totally confidential. It will take approximately 80 minutes to write the test and answer the questions on the questionnaire. The testing will take place during the students' regular class time on [TESTING DATE]. If you wish to see a copy of the questionnaire, please feel free to contact me at the number below and one will be provided to you.

Should you have any questions or concerns, please feel free to contact myself, Lisa Dundas, or my thesis supervisor, Dr. Gretchen Hess, at the University of Alberta.

If you do not wish your child to take part in this research study, please complete the bottom portion of this sheet and have your child return it to [NAME OF TEACHER] at the school.

Thank you for your cooperation.

Yours truly,

Lisa Dundas Graduate Student University of Alberta (492-5245)	Dr. Gretchen Hess Associate Professor University of Alberta (492-1155)

I do not give permission for my son/daughter ______________________________ to participate in the research being carried out at [NAME OF SCHOOL] on [DATE OF TEST].

____

Parent/Guardian Signature

APPENDIX J

COPY OF PARENTAL INFORMATION/PERMISSION FORM

DATE

Dear Parent or Guardian,

I am conducting a research study to find out if Grade 9 students from urban areas and nonurban areas score differently on a test of their knowledge about jobs. This letter is to inform you that your son/daughter has been selected to take part in this study. Your child will complete a questionnaire and write a 120-item multiple-choice test. The questionnaire will ask your child such questions as whether they live in an urban or rural area, what range of grades they have received in Grade 9, what occupations their parents have, and what type of job they would like to do when they finish high school. The test will cover such areas as the duties and work conditions of different jobs and the education and attributes required to do different jobs. Students will not have to write their names on any of the materials, and therefore, all their answers and test scores will be totally confidential. It will take approximately 80 minutes to write the test and answer the questions on the questionnaire. The testing will take place during the students' regular class time on [TESTING DATE]. If you wish to see a copy of the questionnaire, please feel free to contact me at the number below and one will be provided to you.

Should you have any questions or concerns, please feel free to contact myself, Lisa Dundas, or my thesis supervisor, Dr. Gretchen Hess, at the University of Alberta.

In order for your child to take part in this research study, please complete the bottom portion of this sheet and have your child return it to [NAME OF TEACHER] at the school.

Thank you for your cooperation.

Yours truly,

Lisa Dundas
Graduate Student
University of Alberta
(492-5245)

Dr. Gretchen Hess
Associate Professor
University of Alberta
(492-1155)

I do/do not give permission for my son/daughter ______________________________ to participate in the research being carried out at [NAME OF SCHOOL] on [DATE OF TEST].

____
Parent/Guardian Signature